DOCUMENT RESUME

ED 033 750 PS 002 430

AUTHOR	Kraft, Ivor; And Others
TITLE	Prelude to School: An Evaluation of an Inner-City Preschool Program.
INSTITUTION	Children's Bureau (DHEW), Washington, D.C. Social and Rehabilitation Service.
Report No	CB-3-1968
Pub Date	68
Note	96p.
Available from	Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 ($1.00)
EDRS Price	EDRS Price MF-$0.50 HC Not Available from EDRS.
Descriptors	Culturally Disadvantaged, Family Characteristics, Intelligence Quotient, Language Skills, *Nursery Schools, *Parent Participation, Preschool Children, *Preschool Programs, *Program Descriptions, *Program Evaluation, Socioeconomic Status
Identifiers	Howard University Preschool Project, Illinois Test of Psycholinguistic Abilities, ITPA, Merrill Palmer Scale Of Mental Tests, Peabody Picture Vocabulary Test, PPVT, Stanford Binet

Abstract

The purpose of Howard University's pre-"war on poverty" experiment, operating a 2 year, full day nursery school for disadvantaged 3-year-olds, was to determine whether and to what extent a standard nursery school program in which parents are involved could help children in their later schooling. This booklet gives an overall view of the project, explaining its experimental-control group design, the recruiting and screening of subjects for both groups and the detailed characteristics of children selected and their families. The school description includes personnel, physical setting, curriculum, and health maintenance measures. The adult activities program is also discussed. The results of the pre-posttesting program (Stanford-Binet, Peabody Picture Vocabulary Test, Merrill-Palmer Scale, and the Illinois Test of Psycholinguistic Abilities) are given. The lower a child's initial IQ was, the more likely he was to make large gains after nursery school experience indicating that the diversity of intellectual capacity was not as great as the original IQs showed. The children of low socioeconomic status who scored low on the initial IQ test made the most gains during the second year of the program.

ED033750

CHILDREN'S BUREAU RESEARCH REPORTS

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

number 3

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

PRELUDE TO SCHOOL

An Evaluation of an Inner-City Preschool Program

IVOR KRAFT

JEAN FUSCHILLO

ELIZABETH HERZOG

PS 002430

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
SOCIAL and REHABILITATION SERVICE • Children's Bureau • 1968
For sale, Supt. of Documents,
U.S. Government Printing Office,
Washington, D.C. 20402 - $1.00

DISCRIMINATION PROHIBITED—Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Therefore, the programs of the Children's Bureau like every program or activity receiving financial assistance from the Department of Health, Education, and Welfare, must be operated in compliance with this law.

IN THIS SERIES of publications, the Division of Research of the Children's Bureau reports the findings of studies of child health and welfare services and of matters relevant to providing such services. Most of the studies in the series were conducted as part of the Bureau's programs of research and demonstration grants. Some, however, represent work carried on by the Bureau's own staff, and some the work of investigators not associated with the Bureau. Whatever the source, the primary purpose of the series is to promote the utilization of research findings by those who make policy and those who administer programs in the fields of child health and welfare.

To report the findings of research and factfinding efforts is not a new activity of the Children's Bureau. Indeed, for many years the Bureau's chief means of carrying out its mandate to promote the welfare of American children was to report the findings of studies carried on under its auspices. Through these publications many conditions adversely affecting child life in the United States were revealed, and from them many remedial actions flowed.

The very success of these publications resulted in a relative diminution in their volume. For among the changes in American life that the Bureau's investigations helped to produce was the passage of the Social Security Act, under which, among other matters, Federal participation in the support and fostering of public child health and welfare programs was authorized. Several of these grant-in-aid programs were entrusted to the Children's Bureau to administer, and recent amendments to the act have increased the Bureau's responsibilities in this respect. The result has been that for many years the Bureau's efforts have been directed largely to the setting and maintaining of standards for the operation of these service programs and to the compilation of the relevant statistics. Reports of research and reviews of research findings have been published from time to time, of course, but the main thrust has been in other directions.

Recently, however, the Bureau's capacity to produce studies has been greatly augmented by the establishment of programs of research and demonstration grants in child health and welfare. Supported largely by these funds, many investigations are now underway or have been completed. What has been lacking so far is an effective means of bringing the findings of these and other important studies to the attention of administrators and practitioners in a form in which they can be put to use. It is to this objective of research utilization that this new series of Children's Bureau publications is addressed. We hope that through these reports this objective can be significantly forwarded.

Jule M Sugarman

JULE M. SUGARMAN
Acting Chief, Children's Bureau
SOCIAL and REHABILITATION SERVICE

HELEN L. WITMER
Editor

CHARLES P. GERSHENSON
Director, Division of Research

Contents

INTRODUCTION 1

I. HISTORICAL BACKGROUND 3

II. AN OVERALL VIEW OF THE PROJECT 8

III. RECRUITING THE NURSERY AND COMPARISON GROUPS 11

IV. CHILD AND FAMILY CHARACTERISTICS 17

V. THE NURSERY SCHOOL 25

VI. THE ADULT ACTIVITIES PROGRAM 36

VII. TEST FINDINGS AND ASSOCIATED FACTORS 46

VIII. SUMMARY 63

APPENDIX A. A FURTHER ANALYSIS OF IQ CHANGES 66

APPENDIX B. BRIEF SKETCHES OF FOUR FAMILIES 78

Howard University Preschool Project

Flemmie P. Kittrell, ***Director***

NURSERY SCHOOL STAFF

Head Teacher—Phyllis Tilley

Teachers

Marie Judson
Nancy Logan
Josephine Price
Jewell Terrell
Ruby Joyner, Assistant

Adult Activities Worker—Gladys Martin

RESEARCH STAFF

CHILDREN'S BUREAU

Research Director—Elizabeth Herzog

Research Associates

Ivor Kraft
Jean Fuschillo
Eileen Toban
Richard Bloom

HOWARD UNIVERSITY

Research Aides

Marion Bass
Theron Bell
William Greenhill
Norma Jean Henderson
Tressie Muldrow
Patricia A. Thompson

INTRODUCTION

AMONG the various means used or proposed for combating poverty, one that ranks high in popular favor is compensatory education for preschool children. Through this means it is hoped that some of the disadvantages of poverty will be offset and the children's achievement in school will be markedly improved. In consequence—so the theory has it—the children will be able to qualify for good jobs when they are adults, and thus the poverty cycle will be broken.

Under the impetus of modern psychological research, this line of reasoning was being pursued and a number of experimental programs were set up a few years before the official "war on poverty" began. Accordingly, reports of findings as to the effectiveness of preschool programs are beginning to appear.

The present report is one such contribution. It tells of Howard University's experiment in providing a 2-year, full-day nursery school for disadvantaged 3 year olds who lived in its neighborhood.* This program was administered by Dr. Flemmie Kittrell, Professor and Head of the Home Economics Department, under whose direction a well-equipped nursery school for research and student training had been conducted for over 20 years. The report presented here is based on an evaluative study conducted by members of the staff of the Children's Bureau.

The chief purpose of the report is to describe the accomplishments of the Howard University Preschool Project with respect to improving intellectual functioning, and to show with which sorts of children the project was most successful. As background for this, the nursery school and the parent-activity program are briefly analyzed. Descriptions of four children and their parents are also presented.

Such a report, obviously, does not give a full account of the accomplishments of the Howard University Preschool Project. It gives little information about the children's social and emotional development or about changes that the program brought about in their lives at home. It does not (could not yet) tell what the effects of the program were on the children's later progress in school. The latter information, however, will be the subject of future reports, for the main test of preschool programs for children of the poor is whether they enable the children to do better in "regular" school than they would otherwise have done.

The report as here presented is a somewhat abbreviated version of the full study that was prepared by the Children's Bureau. In publishing in this form, we aim to present the findings succinctly and in a way that will be useful to the greatly increased number of people who will be engaged in planning and operating nursery schools and day care centers for children of the poor. Research workers who want a more detailed account of the findings can secure copies of the full report from the Children's Bureau.

THE EDITOR

---

* The project was financed in part by the Children's Bureau's Child Welfare Research and Demonstration Grants Program.

1/2

I. HISTORICAL BACKGROUND

TO SHOW HOW the Howard University Preschool Project fits into the larger picture of early childhood education for children of the poor, a brief historical survey is called for. Since we are not concerned with tracing remote origins, we shall merely sketch some of the high points in the later growth of this movement and then review briefly the present situation and current research findings.

Comenius' ideas

Belief in the crucial significance of early life experiences and of the potentials of early schooling is very old.[1] One outstanding example of early interest in the subject is found in the work of the great Moravian educator and theologian, John Amos Comenius (1592–1670). More than 300 years ago he wrote a little book on the history of early childhood education that has become a classic.[2] In it he proposed that the first 6 years of a child's life be spent in what he called a "mother school," his idea being that the child's first educator should be a sensitive and informed mother. These early experiences were thought to lay a foundation for all that was to follow in later life. They were to include simple lessons, both informal and formal, in naming objects (such as stones, plants, and animals), in becoming acquainted with the terms for the body's parts, in knowing colors, the "geography" of the crib, the nursery room itself, and the immediate house and farm surroundings, and in reciting the Lord's Prayer.

The views of Friedrich Froebel

Early childhood education received a great push forward when Friedrich Froebel (1782-1852) published his *Education of Man*,[3] which led to the fully developed idea of the kindergarten. Froebel's philosophy still commands respect among educators. He stressed spontaneous free play as the basis of learning, the importance of self-activity and motor expression, the primacy of social cooperation as the core of the curriculum, and the need for special toys and equipment to stimulate learning through manipulation and doing.

Froebel's idea caught on in Germany and the United States. By the late 19th century there was a well-developed and almost crusading group of kindergarten and nursery-school advocates. A training institute for kindergarten teachers was opened in Boston in 1868. A few years later the first tax-supported public kindergarten was established in St. Louis, Missouri.

---

[1] See, for example, Robert R. Rusk, *A History of Infant Education*, 2nd ed., University of London Press, 1951; and International Kindergarten Union, *The Kindergarten: Reports of the Committee of Nineteen on the Theory and Practice of the Kindergarten*, Boston, Houghton-Mifflin, 1913.

[2] John Comenius, *School of Infancy*, Boston, D. C. Heath and Co., 1893.

[3] Friedrich Froebel, *The Education of Man* (Translation of *Die Menschenerziehung*, 1826, by W. N. Hailman), International Education Series, New York, D. Appleton and Co., 1887.

The contribution of Maria Montessori

The present aim of overcoming "cultural deprivation" through early childhood education was given prominence in the system developed by Maria Montessori (1870–1952). Basing her ideas on the prior work of Pestalozzi, Froebel, and Seguin, Montessori held that special forms of early intervention could enable children from the slums of Italian cities to do better in later school work and, in general, to become better human beings. She opened schools in low-income neighborhoods and evolved special methods and sets of equipment that stressed sensory training, manual skills, and an individualized approach.

Montessori's work and ideas became a movement that attracted dedicated followers, but it also stirred up much criticism.[4] Actually, aside from its early days, it did not develop as an enrichment program for low-income or deprived children. Instead, it was adopted by small groups of middle-class educators, who founded private Montessori schools in Western European countries.

In the decade between 1910 and 1920 American educators investigated the Montessori approach but it was not widely accepted. Some educators regarded it as contrived and artificial. Others saw it as philosophically alien to the pragmatic and progressive spirit that was sweeping through American education under the influence of John Dewey. In addition, American teachers, accustomed to a rather down-to-earth and unromantic attitude toward childhood, found the sentimental and almost rhapsodical elements in Montessori's writings a bit hard to take. A later and perhaps more serious criticism of the Montessorians was that they seemed reluctant to submit their premises to experimental testing. Recently, however, there has been a revival of interest in the Montessori approach, and quite a few Montessori-type schools have opened in the United States.[5]

Margaret McMillan and the "open-air" nursery

Another influential European educator was the dedicated and enterprising Margaret McMillan (1860–1931), who developed the "open air" nursery school in Great Britain.[6] She began by transforming a slum lot in the southeast of London into a garden spot for children 2 to 7 years old, stressing sunshine, fresh air, baths, food, sleep, natural play and (for that day) a small ratio of children to teachers.

In the years before and after the First World War, McMillan's efforts and writings convinced many on both sides of the Atlantic that the nursery school could be a major means of counteracting slum conditions. In other words, hers was a genuine preschool enrichment effort. Largely as a result of the work of Margaret McMillan and Grace Owen, the Fisher Act of 1918 made nursery schools a part of the English national school system.

American developments

By the 1920's early childhood education had achieved a small but secure place for itself in American education. Leading universities began to sponsor child development laboratories and model nursery schools, and much attention was paid to the years from birth to age 6. Since that time, nursery schools have become a well-established part of the American educational scene, catering largely to middle-class children and usually on a payment-for-service basis. Their viewpoint and methods have been taken over to some extent, however, by day care centers.

---

[4] See William Heard Kilpatrick, *The Montessori System Examined,* Boston, Houghton-Mifflin, 1914; and William Boyd, *From Locke to Montessori, A Critical Account of the Montessori Point of View,* London, C. G. Harrap and Co., 1914.

[5] The modern and updated case for Montessori is made by Nancy McCormick Rambusch, *Learning How to Learn, an American Approach to Montessori,* Baltimore, Helicon Press, 1962. See also, R. C. Orem, *A Montessori Handbook,* New York, G. P. Putnam and Sons, 1965.

[6] See Margaret McMillan, *The Nursery School,* New York, E. P. Dutton and Co., 1930.

Recently there has been a resurgence of the belief that nursery schools can be made a likely means of compensating for the cognitive deprivation that many children from low-income families are believed to suffer. In *Intelligence and Experience,*[7] J. McVicker Hunt reviewed the evidence that underlines this belief and showed that gross lack of appropriate stimulation in early childhood can seriously depress perceptual and cognitive development.

Belief in the efficacy of preschool education for the "culturally deprived" has led to the establishment of a considerable number of experimental centers, largely under private or university auspices. Enthusiasm about the probable benefits of early educational intervention led the planners of the "war on poverty" to propose large-scale preschool services. From this interest emerged Project Head Start[8] and, most recently, a proposal for a nationwide network of "parent-child centers."

Aside from Head Start, we estimate that by mid-1965 there were in the United States close to a hundred preschool projects devoted to "enriching" the life experiences of the children of the poor.[9] Perhaps 15 or 20 of them, including the Howard University Preschool Project, had a research component of some substance.

In a sense, in the Howard University Project and the other preschool demonstrations we have returned to the convictions of Comenius, Froebel, Montessori, McMillan, and others and are seeking to develop a new kind of "infant school" to meet the needs of deprived children from low-income environments. In place of Comenius' mother-infant games, Froebel's and Montessori's special equipment, and McMillan's fresh air and free play, a new assortment of devices have been developed and are being tried out in some of the projects, while other projects rely on more conventional methods. Among the new devices are tape recorders, phonographs, electric "talking" typewriters, full-length mirrors, and a large variety of mechanical puzzles, plastic materials, and techniques to stimulate talking and listening. Instead of the spiritual and almost mystical language of a Froebel or a Montessori, the new vocabularies speak of "cognitive enrichment" (activities that stimulate thinking) and "enhanced self-image" (good feelings about what one is and is becoming). Despite these differences, however, the basic aim remains the same: to find a means by which children from poverty-stricken homes can realize their potentialities.

Research on the effectiveness of early childhood education

In the 15 or so years before 1940, some 300 research reports on nursery schools were published. These were reviewed and assessed by various authorities,[10] and some overall conclusions were drawn. By and large it appeared that attending nursery

---

[7] J. McVicker Hunt, *Intelligence and Experience,* New York, The Ronald Press Co., 1961.

[8] See *An Invitation to Help: Head Start Child Development Centers,* Community Action Program, Office of Economic Opportunity, Washington, D.C., 1965, as well as numerous other publications of Project Head Start.

[9] See Benjamin Bloom, Allison Davis, and Robert Hess, *Compensatory Education for Cultural Deprivation,* New York, Holt, Rinehart and Winston, Inc., 1965, and The Urban Child Center, "Inventory of Compensatory Education Projects, 1965," School of Education, University of Chicago, 1965 (mimeographed).

[10] Among others, the following are useful sources of review treatments and comprehensive bibliographies: National Society for the Study of Education, 39th Yearbook: *Intelligence: Its Nature and Nurture; Part I: Comparative and Critical Exposition,* Bloomington, Ill., Public School Publishing Co., 1940; National Society for the Study of Education, 46th Yearbook, *Early Childhood Education—Part II,* University of Chicago Press, 1947; Pauline S. Sears and Edith M. Dowley, "Research on Teaching in the Nursery School," in N. L. Gage (ed.), *Handbook of Research on Teaching,* Rand McNally, 1963, pp. 814–864; Elizabeth Machem Fuller,

PS 002430

school did not have a lasting impact on the intellectual functioning of the children who were served—for the most part, middle-class children of at least average endowment.

The renewed interest in the possibility of using nursery schools to improve the cognitive functioning of the children of the poor has stimulated a new wave of evaluative research. Some of the questions now being asked are old and familiar; others are new, in the sense that they are derived from contemporary educational theory and recent technological innovations.

The older questions include the following:

1. Can preschooling be made to have a lasting and positive impact on the subsequent intellectual and social development of children in general?

2. Aside from "children in general," can preschooling be of particular value to children from low-income homes and neighborhoods?

3. What specific aspects of the preschool curricula produce what specific results?

4. Does preschooling enhance school-related skills; if so, which ones and in what ways (reading, arithmetic, social adjustment, and the like)?

Among the new questions are the following:

1. What are the differential impacts of the various enrichment schemes? Are some significantly more effective than others?

2. How early in the life of a deprived child must preschooling be introduced to make it effective?

3. How essential is the involvement of parents, and the school-home carryover, to the enrichment effort?

4. Are there specific subgroups of children within the low-income population that are more suitable candidates than others for compensatory schemes?

5. Are there any particularly effective ways of offsetting the specific language deficiencies of deprived children, ways which stem from contemporary learning theories, including theories about the acquisition of language?

It is much too early to say what the current wave of research will yield. Only a handful of projects have published even tentative findings but it may be worthwhile to cite a few of them.[11] In this brief summary the research findings from the Head Start programs are not included, since these have typically been summer programs and so may not be comparable with the longer-term projects cited here. The interested reader is referred, however, to a forthcoming publication from the Office of Economic Opportunity.[12]

Beller,[13] Bereiter *et al.*,[14] Goldstein,[15] Gray and Klaus,[16] and Weikart *et al.*,[17] have

---

"Early Childhood Education," in Chester W. Harris (ed.), *Encyclopedia of Educational Research*, 3rd ed., MacMillan, 1960, pp. 385–398; Joan W. Swift, "Effects of Early Group Experience: The Nursery School and Day Nursery," in Martin L. and Lois W. Hoffman (eds.), *Review of Child Development Research*, Russell Sage Foundation, 1964, pp. 249–288.

[11] For overviews and partial assessments of contemporary enrichment undertakings, see J. W. Getzels, "Preschool Education," *Contemporary Issues in American Education*, U.S. Department of Health, Education, and Welfare, Office of Education, Bulletin 10034, 1966, No. 3, pp. 105–114; Clay V. Brittain, "Preschool Programs for Culturally Deprived Children," *Children*, July-August 1966.

[12] John McDavid, *Project Head Start: Evaluation Research 1965–1967*, Division of Research and Evaluation, Office of Economic Opportunity, Washington, D.C.

[13] E. Kuno Beller, "Annual Report of Research in the Philadelphia Experimental Nursery School Project," Temple University, Philadelphia; 1965 (mimeographed).

[14] Carl Bereiter and Siegfried Engelmann, *Teaching Disadvantaged Children in the Preschool*, Prentice-Hall, 1966.

[15] Leo S. Goldstein, *Evaluation of an Enrichment Program for Socially Disadvantaged Children*, Institute for Developmental Studies, Department of Psychiatry, New York Medical College, June 1965 (mimeographed).

[16] Susan W. Gray and Rupert A. Klaus, "An Experimental Preschool Program for Culturally Deprived Children," *Child Development*, Vol. 36 (1965), No. 4, pp. 887–898.

[17] David P. Weikart, Constance K. Kamii, and Norma L. Radin, *Perry Preschool Project Progress Report*, Ypsilanti Public Schools, Ypsilanti, Michigan, June 1964 (mimeographed).

issued reports indicating that preschooling produces certain positive results. There are important differences among their findings but the positive results reported at the end of the preschool period appear to be the following:

1. IQ test scores increase by approximately 5 to 15 points.
2. Use of language and understanding of arithmetic improve.
3. The overall school adjustment of the children appears to be enhanced.
4. Parents of the children see the preschools in a favorable light.

Some of these early findings are based on objective tests and control-group measurements; others, on teachers' impressions.

With respect to the crucial question of persistence of effect (for example, whether the IQ increase is sustained or whether the children who attend preschool do better in the third grade than those who do not attend), there is as yet no large and clearcut body of evidence.

One tentative report from the Racine, Wisconsin, schools cites certain negative findings and asserts that "... 'one-shot' compensatory programs would seem to be a waste of time and money."[18] An informal report by Alpern questions the usefulness of brief preschool programs.[19]

It is clearly too early to pass judgment on long-range results. Only time and careful testing will tell whether the current blossoming of interest and effort in this field of education will result in major new developments in teaching methods and in the substantial enhancement of the ability of the children of the poor to succeed in school.

---

[18] R. G. Larson and J. L. Olson, *Final Report: A Pilot Project for Culturally Deprived Kindergarten Children,* Unified School District No. 1, Racine, Wisconsin, April 1965 (mimeographed draft).

[19] Gerald D. Alpern, *The Failure of a Nursery School Enrichment Program for Culturally Disadvantaged Children;* preliminary report prepared for 1965 regional meeting of The American Association of Psychiatric Clinics for Children (mimeographed).

II. AN OVERALL VIEW OF THE PROJECT

AMONG THE MANY preschool demonstrations now underway in the United States, probably no two are exactly alike and perhaps no two have identical aims. The distinguishing features of the Howard University Preschool Project were the following:

1. The Project was carried on in a long-established nursery school that was conducted by a university for research and training purposes.

2. The children that the Project served were enrolled at the age of 3. (Many preschools have 4 or 5 as the entrance age.)

3. The children were much alike in age, being 36 to 42 months old at the start. (Many projects enroll children of a wider age span.)

4. Largely because of the makeup of the District of Columbia population, all the children were Negroes. All lived in the same general neighborhood. (Some projects stipulate a more heterogeneous enrollment.)

5. The nursery day was about 7 hours long (8 hours including the bus trip to and from school).

6. The children attended the preschool for a 10-month school year and a 2-year time span. (Most demonstrations are considerably shorter than this.)

7. Transportation was provided for all the children.

8. No fees were charged.

9. The curriculum was essentially that of a standard nursery school that serves middle-class children, no specific "enrichment" features having been added.

10. The teachers, under the general guidance of the Project Director and the Head Teacher, were allowed to modify the usual nursery school activities to fit the children's needs.

11. There was a full-time "adult worker" (parent educator) on the staff who served the families of children enrolled in the nursery school.

12. Evaluation of the Project's effectiveness was conducted by a team (composed of staff members of the Children's Bureau) that was independent of the service staff.

13. There was provision for a continuation of special schooling beyond the preschool phase of the demonstration.[20] In the school year 1966–67 this consisted of a kindergarten specially set up in the Model School Division of the District of Columbia Public Schools for the children who had attended the Howard University nursery school. In the current year (1967–68) the children are divided between two "special" first-grade classes, the other children in these classes not having attended the Project.

Many preschool demonstrations include provisions similar to these, but probably none includes all of them or combines them in such a way as to duplicate the

---

[20] Dr. Ira Cisin, Director, The Social Research Group, George Washington University, who was the statistical consultant to the present project, is directing the evaluation of the continuation project, under a grant from the Children's Bureau.

Howard University Preschool Project. This makes for difficulty in comparing outcomes across projects but it also has the advantage of making it possible to determine whether different approaches yield different or similar results.

Research objective

The purpose of the Project was to find out whether and to what extent a standard nursery school that includes work with parents can enhance the later school achievement of children who live in a slum area. This question cannot yet be answered, for the children who were served have only now entered the first grade of elementary school. In this report we shall show, however, what changes in IQ and other psychological measures took place between the beginning and the end of the two nursery-school years, and what some of the factors were that differentiated the children whose IQ's changed greatly from those who either did not change or regressed.

The comparison group

In trying to assess the effects of an educational program, a perennial problem has been to prove that educational intervention produced the observed effect, and that this effect would not have occurred without the specified intervention. Research investigators partially obviate this problem by setting up a "controlled" experiment. In the present instance, we secured two groups of children, more or less the same in the variables presumed to be significant. We then exposed one group to 2 years of nursery school. The second group was not exposed to this influence, and in that sense the experiment may be said to be "controlled."

However, we were aware that many factors and influences could enter the lives of both groups of children during the 2-year period of the Project's existence. Other than offering the experimental children the preschool experience, we did not really "control" any of these possible influences. For this reason, we prefer to call our experimental group the "nursery group" and our control group the "comparison group."

Strictly speaking, the comparison group was not entirely "untreated." There were certain minimal "treatments." The families in the comparison group were encouraged to think of themselves as participating in a university-centered study of some significance. They were visited in their homes by the research workers, and friendly inquiries were made about their background and life experiences. The comparison-group children were examined and tested just as were the nursery-group children. All of this is certainly a minimal involvement as contrasted with the service provided to the nursery-group families. But it must nonetheless be thought of as a kind of "treatment" which might yield a significant placebo or experimental effect.

Although the comparison group was referred to formally as the Howard University Growth Study, it is doubtful that many of the comparison-group parents were familiar with this official title. Perhaps merely being a part of this study and being told that one is making a helpful contribution to the welfare of children was itself a morale-boosting experience for some parents. Perhaps parents in the comparison group were encouraged in small but palpable ways to take a greater interest in their children and to do a better job as parents. Perhaps the children also thought of themselves as in some way "special" and therefore responded more vigorously to school-related tasks and situations. Several of the comparison-group parents said that they welcomed the opportunity to visit Howard University periodically and thought the experience was good for their children. If there were such effects on the comparison group, they would tend to diminish differences between the two groups in outcome measures.

There is a simple way to compensate

for such experimental effects on the comparison group. It would be possible to recruit another comparison group later, made up of parents and children who have had no involvement with preschooling or with an experimental enterprise like the Howard University Growth Study. If care is taken to make sure that this newer comparison group has had backgrounds and life experiences similar to those of the nursery group, placebo and experimental effects will be held to a minimum.

III. RECRUITING THE NURSERY AND COMPARISON GROUPS

HOWARD UNIVERSITY IS situated about 2 miles north of the Capitol in Washington, D.C. The campus is bounded on the east, south, and west by densely populated, low-income neighborhoods. These areas are populated almost wholly by Negroes and are generally regarded as the inner-city slums of Washington. It was clear from the start that the areas lying roughly to the south of the Howard campus would be the likeliest source for recruiting children to attend the nursery school or to be in the comparison group. After census figures were examined and neighborhoods visited, it was concluded that Tracts 46, 47, 48, and 49 should be the target area for recruitment. It was obvious that, no matter what sampling procedure was used, a sample was bound to consist of Negro families, most of whom would have incomes that were low.

Sample

No delimiting criteria of socioeconomic level were established. Although the intention was to concentrate on the lower end of the socioeconomic continuum, it was assumed that any resident in the target area would be a suitable candidate, so no screening for income was attempted.

With respect to age, children who were about 3 years old were the ones we wanted: specifically children who, in October 1964, would be not less than 3 years old and not more than 3 years 7 months old. At the outset an even more restricted age span had been envisaged but it became clear that difficulties in identifying suitable candidates demanded a broader one. As it turned out, despite considerable effort, errors occurred in determining the exact ages of children, and we ended up with one child in the nursery group and three children in the comparison group outside the stipulated age range.

For inclusion, it was also required that parents speak English; that the children had never been in formal group care; that the parents agree to bring the children to the University for psychological testing (called play sessions); and that, if their children were chosen for the nursery group, they be willing to have them ready to go to school when the bus arrived in the morning. (It was made clear to every parent that only a limited number of children could be enrolled in the nursery school and that selection would in no way depend on how the children performed during the "play sessions.")

Concerning the physical and health status of the children in both groups, the following requirements were established:

1. The child was to be in generally good health, without gross visual or auditory deficiencies and free from serious orthopedic problems.

2. There was to be no indication of organically based mental retardation, as evi-

denced in a routine pediatric examination.

3. There was to be no overt sign of severe mental disturbance.

Recruitment procedures

It was necessary to utilize a practical and feasible strategy of recruitment. This strategy could not be unduly laborious, expensive, or time-consuming, since there were limitations of time, money, and staff.

We weighed the relative merits of a self-referred sample (families who volunteer to enroll their children) as compared with a designated sample (families deliberately chosen by the research team). Strictly speaking, there is no such thing as a purely designated sample in an undertaking like the Howard Project, since for various reasons some designated families do not or cannot follow through. Still, there are major and highly significant differences between a parent who makes the effort to seek out a service or who goes out of the way to make himself available for a demonstration project and one who merely agrees to accept a service when it is offered to him. There is always the possibility that a self-referred candidate is more highly motivated or more eager for the service or more responsibly oriented to use it. Thus a self-referred sample may be biased in the direction of predetermined success, since a self-referred client may be a self-helping client who would find routes to success with or without the Project's help.

In view of these considerations, all self-referral procedures were ruled out. Among these were the use of mass media (newspaper ads, billboards in stores, radio announcements), announcements by school principals concerning the availability of the nursery, and other word-of-mouth recruitment devices that could have been provided by social service or health agencies in the community.

Thought was given to the possibility of reaching target families by canvassing elementary school pupils, asking them whether they had 3-year-old siblings. Toward this end, the cooperation of the Superintendent of Schools and 12 elementary school principals was obtained. Teachers in grades three to six were requested to distribute slips of paper to all children in their classes, asking them to enter the names of their 3-year-old siblings, as well as the names and addresses of other 3 year olds they knew who lived in the neighborhood. The pupils could take the slips home and ask parents or older siblings to fill them out. In this way a total of 379 names (including approximately 30 identifiable duplicates) were obtained. On inspection, however, and after making a field check, it was found that names and addresses, as well as year of birth, were frequently inaccurate, and that considerable time would be required to make these lists useful. This approach had the additional disadvantage of containing very few first-born children. The lists were held in reserve but it was not necessary to use them in recruiting.

Another strategy that was considered and subsequently abandoned entailed the use of vital statistics records. Through the cooperation of the D. C. Department of Public Health a list was obtained of all the children in the target tracts who were born within the stipulated period. This list contained names, addresses, and birth certificate numbers. A chief drawback to this plan was that the addresses were at least 3 years old. In addition, the list arrived too late to be of use. Later examinations of the list showed that about 40 percent of the children finally selected were on it.

Still another approach would have been to solicit lists of likely candidates from community agencies, such as the Department of Welfare, settlement houses, churches, hospitals, family agencies, and health clinics. The disadvantage of this method is that it involves a possible violation of principles of confidentiality, is laborious, and results in a roster biased in the direction of families known to social agencies. As an insurance, however, such lists, totaling 79 names, were obtained from two social agencies in the community.

The house-to-house canvass

After considering, experimenting with, and discarding alternative strategies of sample recruitment, it was decided that the most practical and direct approach would be a house-to-house canvass. This approach eliminated many of the undesirable selective factors inherent in most of the discarded strategies and dispensed with the costly, tedious process of checking and tracing down the numerous changes in address that would have been encountered in following any available list.

Ten interviewers, mostly Howard University students, were employed part time to conduct the canvass, which lasted for 3 weeks and was supervised by a member of the research team. The canvass required a total of about 500 interviewing hours, at the cost of approximately $700.

In preparing for the canvass, interviewers were briefed on recommended interviewing procedures. The nature of the Project was explained to them, each item in the interview schedule[21] was discussed, and the importance of attempting to reach every household was stressed. At the end of the briefing session, a mock interview was held to familiarize the canvassers with the content and sequence of the interview schedule.

A structured questionnaire was used, requiring between 5 and 8 minutes to administer. The chief question was simply whether there was a child in the household who was born between the stipulated dates. If the answer was no, the interview was terminated, with thanks. If the respondent indicated that there was such a child in the household, the exact birth date was requested, and, if available, the birth certificate number or other official verification of birth date. The respondent was also asked whether the child had any prior or current group care experience and whether the family was planning to move from the present address in the near future.

At the close of the interview, the canvasser was instructed to thank the respondent for his cooperation and to say that someone from Howard University might be in touch with the family at a later time. The canvassers were to make no commitments about enrolling children in the nursery school.

Interviewers were requested to observe the following rules during the canvassing:

1. The canvasser was to introduce himself as a student at Howard University and to show a University identification card if requested to do so or if there seemed to be some doubt in the mind of the respondent.

2. Respondents were to be told that Howard University was planning to start a free nursery program for a small number of 3-year-old children. As a first step it was necessary to find out how many such children lived in the area.

3. Wherever possible, the mother was to be interviewed. If this was not possible, any permanent member of the household (father, grandparent, aunt, teenage sibling) could be interviewed.

4. The interviewer was to proceed from one dwelling unit to the next, omitting only commercial establishments. In multiple dwelling units, the canvasser was to attempt to reach as many of the families as could be identified.

5. A log was to be kept of all houses visited, whether or not a 3-year-old was identified as living at the address.

---

[21] Copies of interview forms used in the Project, as well as other data-gathering materials, will be supplied to research workers on request. Address inquiries to Division of Research, Children's Bureau, Dept. of Health, Education, and Welfare, Washington, D.C. 20201.

Results of the canvass

Unfortunately, because of certain inaccuracies in recordkeeping as well as incomplete reporting on the part of some canvassers, we are not able to report with precision on the canvassing and recruitment stage of the Project. We know that a minimum of 190 families with children within the stipulated age range were identified in the four target tracts. In addition, another 10 families (also a minimum estimate) not in the target tracts were picked up during the canvass—some inadvertently and some in order to approach the desired quota.

At the start, the aim was to find 250 to 300 eligible families. From this pool, a nursery group of 38 children and a comparison group of 80 to 100 children would be drawn. (The much larger number for the comparison group was wanted because of an expected attrition of 25 to 50 percent.) Toward the end of the canvassing stage, it was apparent that so large a sampling pool would not be obtained unless we were willing to invest considerable additional time, money, and effort. It was decided not to make this additional investment, to settle for a pool of approximately 200 families, and to take the risk of reducing the comparison group to not less than 60 families.

Selectivity in canvassing

According to the records of the D. C. Health Department, 517 children were born between April 1, 1961, and October 31, 1961, in the tracts covered by the canvass. This means that the 190 children identified in the canvass as living in these tracts in spring 1964 probably represented at least a third of the total 3-year-old population.

The question then arises: to what extent was this pool of families a biased sample of the total number of families in the target area that had eligible 3-year-old children? (We disregard for the time being the handful of families from the "outside" tracts.) Were there selective factors at work as the student canvassers went about their task of knocking on doors and making inquiries?

We must assume that there was some selectivity but we can only speculate as to its exact nature and significance. Perhaps certain kinds of respondents were less prone than others to answer the canvasser's knock and to give the desired information. Perhaps some of the canvassers working in some of the neighborhoods were more consistent and responsible than others in making repeated visits to dwellings where no one was home at the earlier visits. Perhaps certain parents—for example, young mothers of first-born children—were more likely to be at work or to be absent from the home for other reasons during daylight hours. Perhaps substitute caretakers were less ready to acknowledge the presence of a 3-year-old. Perhaps there were other selectivity factors we have not thought of.

The "invitation-to-participate" phase

The approximately 200 families identified in the canvass lived in an area that covered about one and a half square miles. It was necessary to decide which of these families should be invited to participate in the nursery school program and which should be asked to join the group that would be used for comparison purposes. The nursery school would be able to accommodate less than 40 children. The group of children with whom these would be compared should be considerably larger, since it might be harder to hold these people in the study.

The two most populous and promising census tracts were numbers 48 and 49. For convenience in "bussing" the children and in order to avoid possible disappointments if one family was invited to enroll a child in the nursery school and its nearby neighbor was asked merely to take part in the comparison group, it was decided to confine the nursery-group invitations to one census tract. A coin was flipped, and the

49th census tract became the locus of the nursery-group recruitment.

At first we also tried to confine recruitment of the comparison group to one tract, the 48th. This area did not yield sufficient numbers, however, and it was necessary to seek candidates in the remaining tracts, primarily in Tract 46.

From the pool of families living in Tract 49, a random sample of families was chosen as the ones to be invited to enroll their children in the nursery school. A similar procedure was used to select comparison-group families.

The comparison families were invited to join the Howard University Growth Study. They were told that the purpose of the study was to learn as much as possible about children's experiences, so that we might find out more about what helps children to do well in school and what makes it harder for them there. The pediatric and psychological examinations ("play sessions") were also explained on this basis. The general "pitch" of the invitation was that the families would be making a contribution to other parents and children by participating in the study.

Nursery school staff as well as research workers attached to the Project participated in inviting the potential nursery-group and comparison-group families to join the study. Almost without exception, parents expressed willingness to participate as requested. Appointments for the first testing session were made, and free transportation was offered to families that needed it.

In spite of this favorable response, however, many failed to keep their appointments for the tests and the pediatric examinations. An estimated 30 families moved, announced a clear intent to move in the near future, or were otherwise lost track of. A few children were temporarily separated from their families and could not be tested. Four or five families either enrolled their children in other preschools or announced an intent to do so. A few families appeared simply to lose interest in the program and dropped out.

Whenever a family was lost to the Project, another family was randomly selected from the original pool of names and invited to participate. Thus, as the summer weeks went by and the testing was in progress, the original pool of 200 names gradually dwindled. It was necessary to make repeated contacts and visits to attain the minimum figures set for the nursery group and the comparison group. Indeed, several other nearby census tracts had to be drawn on to complete the roster (Tracts 33, 34, 36). These were of much the same character as the tracts originally chosen.

Despite these difficulties, by mid-September 1964 the recruitment of families for both groups was successfully completed. Thirty-eight children were enrolled in the nursery group and 69 children in the comparison group.

Selectivity during the invitational phase

Despite the intention of obtaining a designated and not a self-referred sample, it is clear that, since approximately 96 families were eliminated during the invitational phase, the remaining 104 families do not represent a purely random selection from the 200 in the canvass pool. Some possible factors in selectivity were the following:

It required a certain measure of readiness and willingness to cooperate during the testing period, so some of the less conscientious and disciplined families may have dropped out. In addition, it may be that the families that moved or were otherwise lost track of constituted a less stable and dependable group in some respects. On the other hand, it may be that, in a significant number of cases, some of the "dropouts" were the more self-sufficient and independent families who saw little to be gained from affiliation with either the nursery group or the comparison group.

There may also have been unconscious and even deliberate selectivity on the part of the staff members who participated in the invitational phase. All recruiters were urged to enroll all geographically eligible families without regard to home conditions, physical appearance of parents, evidences of moral or social irregularities in the household, and the like. But staff members may have sometimes disregarded these urgings, preferring not to deal with the more "difficult" families. We did learn of one such case but, so far as we can tell, such cases were very few in number.

Even allowing for various selective factors, the Howard Project was by no means based on a self-selected sample. No family was permitted to volunteer its participation without a prior invitation, and no family was free to choose between entering the nursery group or the comparison group. Moreover, the selective factors probably affected the nursery-group and comparison-group families equally. Just how the two groups compared in certain respects is described below.

Attrition in the study

We settled on 38 children for the nursery group by taking into account the capacity of the facility and anticipating a possible loss of eight or so children in the first year and perhaps another five in the second year. In other words, we hoped to end the 2-year preschool sequence with at least 25 children. As it turned out, not a single child was lost from the nursery group during the first year. During the second year two children dropped out because of moving far away from the school. A third child was temporarily withdrawn for 3 months of the second year because she was sent to visit her grandparents in another city.

As for the comparison group, the expected attrition of 25 to 50 percent did not materialize. At the end of the 2 years, 65 of the 69 children were still in the project.

IV. CHILD AND FAMILY CHARACTERISTICS

THE HOWARD UNIVERSITY PRESCHOOL PROJECT, then, had as its subjects 38 children who attended the nursery school, and 69 children who served as a comparison group. All of these children were Negroes, and all lived in an area of the city in which poverty was frequent. All of them were about 3 years old when the program started. All were in good health at that time, and none had previously attended a nursery school or had had comparable preschool experience.

In spite of these similarities, which stemmed from selection criteria, neither of the two groups of children represented an unbiased sample of children with such attributes living in the chosen residential areas at the time of the study. In addition to other reasons, bias was unavoidable because parents, of course, could accept or refuse the invitation to join the study.

This being so, we must show whether and to what extent this bias interfered with the comparability of the two groups. Moreover, bias or no bias, anyone who wants to generalize the findings of the study (that is, wants to use them to determine the results to be expected of the sort of preschool education provided by this Project) must know to what sorts of children and families the findings refer. This chapter of the report is devoted to answering these questions.

The Children

Age

According to the selection criteria, the children were to be from 36 to 42 months old when they entered the Project. To the best of our knowledge these age limits were adhered to when the children were selected but subsequent checking of birth records showed that three children in the comparison group were 4 to 12 months older, while one in the nursery school group was 2 months younger.

Sixteen of the 38 children in the nursery group were 36 to 38 months old, and the rest with the one exception just noted were from 39 to 42 months old. In the comparison group of 69 children, 21 were in the lower age range. This means that the proportion of children under 39 months old when the Project started was a bit higher in the nursery-school group than in the comparison group, 43 as compared with 31 percent. This is not a statistically significant difference, however, and we did not attempt to take account of it when determining program results.

Sex

There were 15 boys and 23 girls in the nursery-school group, and 32 boys and 37 girls in the comparison group. In other words, boys made up 39 percent of the first group and 46 percent of the second, a difference that was regrettable although it was not statistically significant.

Birth order

In birth order the children ranged from first-born to seventh or higher. Twenty-six percent of the children in the nursery school were first-born, as compared with 16 percent in the comparison group. Another 21 percent in the nursery school and 16 percent in the other group were second in birth order. At the other end of the scale, 37 percent of the nursery school children and 49 percent of the others were fourth or later in birth order.

Birth order is a factor that might be regarded as of importance for the children's development, especially the development of speech, by the time they were 3 years old. The differences between the two groups in this trait were not statistically significant, however.

Intelligence

Since the chief test of the nursery school's accomplishments that is to be made in this report relates to change in scores on intelligence and other psychological tests, the relative standing of the two groups of children at the beginning of the Project is of considerable importance. Table I gives the figures for the Stanford-Binet test.

Table I

STANFORD-BINET SCORES AT OUTSET OF PROJECT: 1964

IQ	Nursery Group		Comparison Group	
	Number	Percent	Number	Percent
Under 60	1	3	--------	--------
60–69	4	10	4	6
70–79	13	34	20	30
80–89	9	24	23	34
90–109	10	26	18	27
110 and above	1	3	2	3
Not tested	--------	--------	2	--------
Total	38	100	69	100
Mean	82.7	--------	84.6	--------

It is clear from the distribution of scores, as well as from the mean scores, that the children in the nursery school were a bit more likely to score below normal on this test than were the children in the comparison group. In both groups, less than a third of the children received scores of 90 or above. In the nursery-school group, however, the proportion of children with an IQ in the 80's was lower and the proportion with an IQ under that point was higher than in the comparison group. The difference between the two groups was greatest under 80. IQ's under 80 characterized 47 percent of the nursery group and 36 percent of the other group.

This difference in IQ ratings is largely accounted for by the relatively poor scores of the nursery-school boys. Their mean IQ was 77.3, as compared with 86.0 for the boys in the comparison group. The mean scores for the two groups of girls were much alike, being 86.3 for the girls in the nursery school, and 85.1 for those in the comparison group.

A third of the boys in the comparison group had IQ's over 90, two of them being over 110. In contrast, only two of the 15 nursery school boys had scores of 90 or more, and neither of these had an IQ over 95. At the other end of the scale, 67 percent of the nursery-school boys had scores under 80, as compared with 34 percent of the other boys. Only one (a nursery-school boy), however, had a very low score (59). With that exception, the boys whose intelligence was rated as below normal had scores in the high 60's or in the 70's or 80's.

These differences among the four groups (nursery-school and comparison groups divided by sex) were not statistically significant. In other words, they do not indicate—even in the case of the boys—that the two samples came from essentially different populations. Nevertheless, they will be taken into account in analyzing the study's results.

Rather similar but less marked differences between the nursery-school children and those in the comparison group appeared on other tests. These are described in detail in a later section of the report.

Overall, then, the children to whom the study's findings refer were healthy Negro children who were about 3 years old at the start. In both groups there were more girls than boys. None of the children had previously attended nursery school. They ranged in IQ from about 60 to nearly 120, with a mean of about 85. Except for the lower average IQ of the nursery-group boys, the children in the comparison group seemed sufficiently like those who attended nursery school to constitute a fairly adequate control.

The Families

We have next to consider the family background of these children and the general social and economic conditions under which they lived. In this connection, the reader should bear in mind that at the outset of the Project the nursery group numbered 38 children (including two twin sets) but only 36 families, and the comparison group numbered 69 children (including one twin set) but 68 families. Because of this, the percentages and comparisons that refer to children and those that refer to families are not strictly comparable.

Characteristics

"Family" was defined as the effective nuclear family at the outset of the Project. "Father" was defined as the effective "father figure" in the household; that is, the male person that the child would be expected to think of as a father or as a father substitute. In cases in which no such father was present at the start of the Project, an effort was made to secure information about the biological father. We assume that this information was the least precise, for many women did not know, for instance, their erstwhile husband's present occupation.

The family characteristics about which inquiry was made were as follows: age of parents and children; presence of father or father substitute in the home; number of children living in the home and elsewhere; where mother and father lived when growing up; how long parents had lived in D. C.; marital status of the mother; amount of family income per year; chief source of income; number supported on income; regularity of income; rent per month; shared kitchen and/or bath; people-to-room ratio; and telephone in home.

The only item on which there was independent verification was the birth date of the child. Such verification was obtained for all of the children. As to other information, it was our impression that family members (typically the mother) were forthright in giving information, and that the information they gave was reasonably reliable. Since we worked more closely with the nursery-group families, the data for the nursery group are more complete, and probably more accurate,. than those for the comparison group.

Most of the baseline interviews with the nursery-group families were carried on by the senior research worker and by the adult worker (parent education specialist). The comparison-group families were usually interviewed by research aides from the Home Economics Department but occasionally the entire nursery school staff participated in interviewing, including the adult worker, the Head Teacher, and the Director.

In compiling the records on family attributes, we asked only for information that seemed clearly useful and necessary. We could, therefore, instruct the interviewers to tell family members that questions were asked only because the information would help us to understand the home and family life of the children in the Project. Parents were also told that we had no formal connection with other agencies in the community and would not give agencies, such as police and welfare departments, any information about them.

Interviewers were instructed not to use pressure in soliciting information. If an informant seemed reluctant to answer or was vague about the answer, the interviewer was expected to accept this pleasantly and to move on to other matters. In cases in which important items were inadvertently skipped in an interview, an attempt was made to secure the needed information in later contacts. Because this process sometimes lasted over a year, our figures do not represent a strict comparison of the nursery group and the comparison group at the start of the Project.

Although interview schedules were provided, interviewers followed an informal semistructured or unstructured style in conducting the interviews. Wherever possible, or where it seemed indicated, they discussed and clarified items and did not settle for the single word or number that would formally satisfy the requirements of the interview form.

Family composition: Sixty-six percent of the mothers in the nursery group were married and living with their husbands, as compared with 53 percent in the other group. In the nursery-school group, however, most of the homes (80 percent) reported either a father or a father substitute. This was true of a significantly smaller proportion of the families in the comparison group. It may have been that father-substitutes were underreported in the latter group, our information about this group being less complete.

Six percent of the mothers in the nursery group and 13 percent in the comparison group reported themselves as single. Fourteen percent of the nursery-group mothers and 32 percent of the comparison-group mothers were separated or divorced. Nursery-group mothers reported five common-law marriages (14 percent); comparison-group mothers, one (2 percent).

Number of children: The median number of children per family, in both the nursery group and the comparison group, was four. In the comparison group, however, the range was greater. Eight of the 68 comparison-group families had from 8 to 10 children in the home, while none of the nursery-group families contained more than seven children. The comparison-group children thus came from slightly larger families on the average, but the difference was not statistically significant.

Age of parents: There was a wide age range among the parents in both the comparison group and the nursery group. The oldest comparison group "mother" (age 54) was actually the child's grandmother, who served as the functional "maternal figure." Her husband was the oldest "father" (age 67) in the group. Several mothers in both the nursery group and the comparison group were in their 40's. The median age, however, was 27 and 28, respectively, for the nursery-group and comparison-group mothers, and 32 and 31 for the nursery-group and comparison-group fathers, respectively. Thus, the two groups were quite similar in age.

Parents' education: The nursery-group fathers were on the whole somewhat better educated than the comparison-group fathers, the difference between nursery group and comparison group in "highest grade completed" being statistically significant. Eleven (37 percent) of the nursery-group fathers had graduated from high school, as compared with nine (16 percent) of the comparison-group fathers.

Whether this difference in reported education means that the nursery-group and comparison-group fathers really differed from each other in functional intelligence or ability is a moot point. A high school diploma from an inner-city school is not synonymous with literacy. We know that among the nursery-group families there were mothers who claimed 8 to 10 years of schooling who could barely read or write.

The nursery-group and comparison-group mothers were much alike in educational level, approximately a fourth of each group having graduated from high school. The median highest grade completed was the 11th in both groups.

Occupation: Relatively few fathers (less than half) in either the nursery group or the comparison group were reported as being the sole source of income for the family. In both groups, 28 percent of the mothers worked. From our more detailed and reliable knowledge of the nursery-group families, however, we estimated that in only two families in which both mother and father worked was the mother the primary source of income. Thus, among the nursery-group families the father was the primary source of income in about two-thirds of the homes, even though he was not necessarily the only source of income. We did not have sufficient information to make this type of judgment about the comparison-group families.

Among the nursery-group fathers, three were classified as semiprofessional (one was a proofreader for a newspaper, another was a criminal investigator in the Internal Revenue Service, and a third was doing welfare work with a religious-philanthropic organization). Another six fathers were classified as skilled workers (e.g. fireman, bricklayer, addressograph operator, carpet layer), while the rest were mainly engaged in unskilled labor.

Most of the nursery-group mothers who were employed were in domestic service or in some form of restaurant service. Three of them, however, worked in more skilled occupations: seamstress, playground supervisor, and teacher.

Housing and living conditions: As judged by the interviewers' ratings, the comparison group's homes tended to "look better," at least on the exterior, than those of the nursery group. Nearly a fourth of the former were rated good or excellent, as compared with about a 10th of the latter. Half of the nursery-group homes and a third of those in the comparison group were rated poor, as the following percentage distribution shows:

	Nursery group	Comparison group
Excellent	—	3
Good	11	20
Fair	39	45
Poor	50	32

Housekeeping, however, was somewhat less likely to be rated poor in the nursery-group families, as the following percentages indicate:

	Nursery group	Comparison group
Good	19	22
Fair	53	38
Poor	28	40

The number of people per room (exclusive of bath and/or kitchen, except when the latter was used as a sleeping area) ranged from less than one person per room to six persons per room for both the nursery-group and the comparison-group families. However, the nursery-group families lived in more crowded conditions than the comparison-group families, their people-to-room ratio being significantly higher. In the average nursery-group family there were three persons per room, as compared with two persons per room for the comparison group. This difference reflects a difference between the census tracts from which the two samples were drawn, urban renewal having eliminated some of the most undesirable housing from the tracts in which the comparison group was recruited.

Similarly, significantly more nursery-group families had to share a kitchen and/or bath with another family—47 percent as compared with 25 percent of the comparison-group families.

Rents ranged from $45 to $180 per month for the nursery group, and $35 to $150 for the comparison group. The median rent for both groups was $75 per month.

Income level: The median income for the nursery-group and comparison-group families was $3,500 and $3,600, respectively. These figures are very similar to those reported in the 1960 Census for the tracts from which the samples were drawn.

In both groups the lowest family income was about $1,000. Annual income extended upwards to $7,000 for the nursery group. Two comparison-group families had annual incomes of over $10,000, but the more representative high income in this group was $7,500. Estimates of family income are probably more accurate for both groups at the upper than at the lower level, where irregular work patterns made it difficult to estimate amount earned per year.

The general similarity between the two groups' income level was emphasized when their standard of living[22] was computed in accordance with the poverty-income criteria used by the Social Security Administration.[23] These criteria take into account residence (farm or nonfarm), number of family members, and sex of family head. For each subgroup (for instance, urban, female-headed families with three children) a weighted average of income at each of two levels of living has been calculated, the "economy level" and the "low-cost" level. The resulting figures provide a standard by which to judge the adequacy of a given family's income.

To explain how the SSA standards were arrived at would involve too much detail for the present purpose. It seems sufficient to say that families whose incomes are below the economy level (which in 1965 was $3,130 for an urban, male-headed family with two children) are officially regarded as living in poverty. Those with incomes between the economy level and the low-cost level we have designated "border-line," while those above the low-cost level we called "adequate."

Table II shows the distribution of the two groups of families according to these designations.

Table II

LEVEL OF INCOME OF FAMILIES IN NURSERY AND COMPARISON GROUPS

Income Level	Nursery group		Comparison group	
	Number	Percent	Number	Percent
Below poverty line	20	57	33	53
Borderline	7	20	12	20
Adequate	8	23	17	27
Not known	1	--------	6	--------
Total	36	100	68	100

The figures indicate that the groups were similarly distributed in income level and are therefore strictly comparable on this basis. They also show that over half of the families were living in poverty and that only about a fourth reported incomes that were sufficient to meet the children's basic needs.

In this connection it might also be noted that only five families (14 percent) in the nursery group and 15 (22 percent) in the comparison group reported receiving financial assistance from the D. C. Department of Welfare. All but two of these 20 families were headed by a mother.

Socioeconomic status: In addition to information about income, it was thought that some global estimate of the relative socioeconomic status of the families was also needed, since social class or socioeconomic status (SES) is a persistently significant variable in studies of intelligence, education, social attitudes, child-rearing practices, and other behavioral correlates.

---

[22] The figures and analysis on this point were prepared by the Editor.

[23] Mollie Orshansky, "Counting the Poor," *Social Security Bulletin*, January, 1965, p. 10 and Table E.

Despite the importance of this variable, there is no uniformity of practice with respect to its definition or to the elements on which it is based. The measure may be derived from any or all of the following: family origins and background, self-definition (the individual says what social class he thinks he belongs to), definition by group judgment, neighborhood residence, housing, income, education, occupation, physical appearance, recreational patterns.

The information already presented indicates that, by and large, the families in the Project belonged to the lower end of the SES continuum. Obviously none of them was upper-middle class, and few would be considered lower-middle class.

As we came to know the families of the nursery group during the course of the first year and as we accumulated data on family characteristics, the families seemed to be classifiable—informally and impressionistically—into three definite strata. One small group of families seemed clearly middle class. Another seemed highly disorganized, living in dire poverty, or resembling what are often called "multiproblem families." The preponderant majority, however, did not fall into either of these extremes but rather gave the impression of being "middling" types.

We decided to use this impressionistic evidence in making a threefold breakdown of the nursery-group families. We proceeded as follows.

Four staff members (two teachers, the adult worker, and the senior research worker) rated the families as high, middle, or low in the following five trait-clusters:

Occupation and income level: regularity of income; skills used on the job.

Education: amount and quality of schooling; how educational background is reflected in communication skills and ability to plan.

Residence: type of neighborhood; appearance, cleanliness, condition, and comfort of home; size of living quarters in relation to size of family; condition of furnishings.

Family competence: maintenance of a functioning household; feeding, clothing, training, and disciplining children.

Attitude toward children's schooling: ambitions for children and family.

Using these ratings as a guide, they divided the families into three groups, putting in the top group the nine they rated highest, in the lowest group the nine they rated most deprived, and leaving the remaining 18 in the middle. This, it will be noted, was a division into quartiles (the middle group being composed of two quartiles) and represents the relative standing of the families as compared with each other rather than with an external standard, such as the poverty level.

There was substantial agreement among the raters on assigning families to these groups, the agreement being greatest with respect to the high ratings. In the seven cases in which there was disagreement, the assignment was made by the research staff on the basis of the individual-item ratings noted above.

As a check on the validity of these ratings, the highest and lowest quartiles were compared on 22 objective characteristics. It was found that they were clearly different with respect to the following 10 indicators: family income in dollars, income per child in dollars, moderate to high regularity of income, number of children in family, shared kitchen and/or bath, number of people per room, combined raters' judgment of appearance of housekeeping and of premises, telephone in the home, and last school grade completed by mother.

These indicators were then used to classify the families in the comparison group, since we did not know these people well enough to use the method employed with the nursery-school group. If a family was above the median on a particular trait, it received a rating of "high" for that indicator; if it was below the median, it was rated "low." A total score for each comparison-group family was derived by adding the number of "high" ratings and subtracting from this sum the number of "low" ratings on the 10 traits. The 18 families that received the highest scores were assigned to the top SES group, and the 18 families receiving the lowest scores became the lowest SES group. This left 32 families as the middle group.

Tabulation of the relevant data showed that the median and percentage figures for the nursery group's SES levels were quite similar to those for the comparison group. For instance, the top families in the nursery group had a median income of $5,000 per year, compared with $5,200 per year in the comparison group.

We do not think that these SES categories are thoroughly satisfactory. Nevertheless, as the study progressed, they seemed to have considerable relevance, at least for the nursery-group families. As later chapters indicate, SES level turned out to be related to other important variables.

Summary

In summary, most of the children in both groups came from families that were poor. A bit over half of them were living in what is officially recognized as poverty. Only about a fourth had a fairly adequate income. Although most of the parents were in their 20's or 30's and most of them had lived in the District for at least 10 years, less than a third of them had graduated from high school, though most had attended high school for at least a year. A few of the parents were semiprofessionals and a few were skilled workers, but most fathers were unskilled laborers and most mothers were domestic or restaurant workers. In most cases, housing conditions were poor or, at best, fair. In short, as was to be expected from the Project's purpose and from its recruitment sources and methods, most of the families were definitely "deprived."

Even so, it is important to note that there were definite differences among the families in living standards and in the various indicators by which socioeconomic status is judged. It was possible to divide them into upper, middle, and lower groups that could be reliably distinguished by the Project staff.

Close to two-thirds of the families were composed of husbands, wives, and children. In most of the other families, the mothers had been married at one time or had common-law husbands.

In none of the above respects were the nursery group and the comparison group markedly different. We concluded, therefore, that the comparison group constituted a fairly adequate control by which the effectiveness of the nursery school program in improving the children's intellectual functioning could be tested.

V. THE NURSERY SCHOOL

ASSESSMENT OF the results of the Howard University Preschool Project calls for information not only about the children and parents who were served but also about the program and services the nursery school provided. So far, the school has been identified as being of the traditional, middle-class variety. This distinguishes it from the new, experimental nursery schools that specifically aim at enhancing cognitive development. What the designation "traditional" actually means, however, can be shown only by a fairly detailed account of the school's daily activities.

In general, traditional nursery schools emphasize the development of the "whole child." They count on experience, exploration, and creative play, under the guidance of competent teachers, to advance the children's emotional and social, as well as intellectual, development. The daily program is usually flexible, with free play, music, dramatics, arts and crafts, storytelling, and games as the chief media of teaching. Didactic "lessons" are infrequent or entirely absent.

The program of activities provided for the children in the project was little different from that which the Howard University Nursery School had previously used with its predominantly middle-class pupils. The major difference lay in the length of the school day—6 or 7 hours in contrast to the usual half-day sessions. What this meant in program will be described below.

Physical Setting

The Howard University Nursery School is housed in the Home Economics Building, an attractive, well-maintained structure. The indoor nursery premises (approximately 2,000 square feet) are on the ground floor of the building with immediate access to a yard approximately 2,500 square feet in size and a larger outdoor playground of approximately 5,500 square feet.

The indoor nursery area, which is continuous but divisible into three subareas, forms a large "L" that faces the small outdoor playground. The wall of the central room is glass, thus providing light and a feeling of spaciousness, as if the playground and the interior were one unit.

A large observation booth, equipped with one-way-vision windows on three sides, is situated in the rear center of the room. It can be entered from a hall behind the nursery area and provides full vision of the entire indoor area. "Intercoms" can be turned on so that an observer can hear what the children are saying, although not always clearly.

Both indoor and outdoor areas are equipped in the usual good-nursery-school style. In the indoor area at the time of our study were blocks, child-size tables, books, puzzles, magnifying glasses, plants, rocks, sea-shell and insect collections, a terrarium, weather charts, and the like, as well as a housekeeping section for "playing house" and dressing up. In the outdoor area were a sand box, wheel toys, free-form cement animals for climbing, a jungle gym, swings, and slide. Overall, the physical environment was bright, pleasant, and clean—a considerable contrast to the drab homes from which many of the children came.

Classroom Groupings, Teachers, and Teacher-child Ratios

The children were divided into groups of about 12. Each group had its own teacher, who remained with it throughout the year. In dividing the children into three groups, an attempt was made to achieve some heterogeneity on the basis of apparent family background and test scores. At the beginning of the second year, the children were assigned to different teachers and to different groups, insofar as the latter was possible while still maintaining a within-group mixture of children from different kinds of homes.

In addition to the teachers that led the groups, there was a Head Teacher and a liaison ("floating") teacher who rotated among the groups as time permitted. Over a hundred student aides (undergraduates in childhood education courses) worked with the children in the course of the 2 years. These aides seldom were on duty for more than 2 consecutive hours, since they had to adjust their work in the nursery to their class schedules. Thus there was considerable turnover in personnel in the course of a day, and the number of aides present and available for direct work with the children varied greatly throughout the day.

The ratio of teaching staff to children shifted throughout the day from a probable high of one teacher or aide to two children to a probable low of one to seven. The average ratio was one teacher or aide to three or four children. For the most part, it was our impression that the aides gave only slight assistance to the teachers, partly because they were there for such short periods of consecutive time and partly because many of them did not seem to be at ease with the children or to be able to take the initiative in helping the teachers. Thus, the effective teacher-child ratio was often closer to one to eight or more.

The Curriculum

In an effort to obtain a detailed and systematic report of the nursery school's curriculum, observations were made and recorded by the research staff on "daily curriculum summary sheets". These sheets were devised to record the children's activities throughout the day according to eight categories: general play; structured and circle activities; tabletop activities; outdoor play; juice or snack; lunch; rest period; and other activities. An additional category for "trips" was added to the curriculum summary sheets in the second year.

These curriculum summary sheets were filled out in three rounds of observations in the first school year (November 1964, March and June 1965) and four rounds in the second year (October 1965, February, June, and July, 1966). Each round consisted of five successive full-day observations. Hence, in the first year, a total of 15 full-day observations were made; in the second year, 19 full-day observations were made. (The reports from one day were not deemed valid.)

The observers included graduate students in the Home Economics Department of Howard University, and two members of the research staff. All were trained by the senior research worker. Prior to the first round of observations, interrater agreement on the meaning of the categories was investigated and judged to be satisfactory.

In an observation session, each of

three observers focused his attention on one of the three groups of children during an entire morning or afternoon. Each observer recorded his group's activities once every 15 minutes by making numerical entries on the sheets to indicate the number of children engaged in an activity, including such "solo" activities as easel painting, water play, or one-to-one engagements with a teacher. Since large blocks of time were spent in undifferentiated "rest" and "outdoor play," precise attention to the specific activities of children was required for only limited portions of the day. Nevertheless, the observers were present and made observations throughout the day, even if this meant, on a 2-hour stretch of time, merely verifying that the children were engaged in rest or outdoor play.

During the second year it was not necessary to have three observers present at a time, since it had become obvious that the observations were being made with adequate consistency and that one observer could cover all three groups.

A shortcoming of the summary sheet was that it made no provision for recording "transitioning," "idling," or "toileting" behavior. Anyone who has observed children in a nursery school knows that they spend a great deal of time in such behavior. "Idling" might be regarded as "just doing nothing" or "wasting time" or "fooling around," but it can also be viewed as a necessary kind of resting or seeking release from temporary states of tension, boredom, or excitement.

The children in the Project spent much time in "idling." During an informal observation session in April 1965, a senior research worker noted the following kinds of such behavior within a half-hour's time; sitting on floor, playing with feet; quietly crying; squatting, sucking thumb; staring out of window, rubbing thigh; twirling; hopping and jumping; running and sliding along floor; swaying against partition; sucking fingers; swinging feet; lying on back under table and patting knees; rapidly opening and shutting cabinet door; licking door knob; straddling chair on stomach, face down, sucking fist; shuffling along with back to wall, rhythmically bouncing against it with buttocks.

Since the curriculum summary sheets did not provide for a record of such activities and since we did not ask observers to note the times devoted to toileting, dressing, preparing (or waiting) to leave, and the like, we do not have an objective record of the amount of time spent in these actions. A rough estimate would be that 15 to 25 percent of the time was spent that way.

An analysis of the recorded observations produced the following percentage breakdown of the time spent in the kinds of activities noted on the curriculum summary sheets:

	1964–65	1965–66
General play	14	6
Structured and circle activities	9	7
Tabletop activities	11	7
Outdoor play	18	24
Juice or snack	4	6
Lunch	8	6
Rest period	34	41
Trips	—	3
Other	2	—
Total	100	100

More specifically, the activities in the first three of the above categories were of the following kinds:

> General play (free or guided): dolls, large blocks, hollow blocks, unit blocks, water/soap, wheel toys, carpenter's bench, sand and water play, easel painting, live animals, small toys, other.
>
> Structured and circle activities: storytelling, music, rhythms and dancing, games, cooking, other.
>
> Tabletop activities: cutting and pasting, nailing and pounding, crayons or paints, puzzles,

finger paint, lotto, beads, small blocks, earth or clay, play dough, looking at books, other.

It will be noted that rest periods consumed 34 to 41 percent of the time accounted for. We do not know how this would compare with the usual half-day nursery school's experience but it is perhaps not unexpected in view of the fact that the children were in the school for 6 or 7 hours a day. The Director's comments on this point give an additional reason for the apparently lengthy rest periods:

> During the second year, despite the fact that the children had become 4 years old and in some cases were nearing 5, most of the children continued to take—and seemed to need—long afternoon naps . . . Because of the crowded home conditions, the rest period at school was the only time that some of the children had beds to themselves in a room conducive to sleep.

Outdoor play was the next most frequent type of activity. Some of this was "structured" play; some of it free play under general supervision. Other major activities (indoor play, storytelling, music, and the like, and the various tabletop activities) consumed a fifth to a third of the time accounted for by the observers' records.

The summary sheets also showed the daily routine of the school. The following was the usual daily schedule:

9:00. Arrival of the first bus, removal of wraps, and breakfast

9:15 to 10:00. General indoor play or outdoor play or tabletop activities

10:00. Arrival of second bus

10:00 to 10:15. Continuation of indoor or outdoor play

10:15 to 10:25. Juice

10:25 to 10:45. Any of the following: storytelling, games, structured didactic play, music

10:45 to 12:00. General indoor play, tabletop activities, or outdoor play, including a walk if the weather permitted

12:00 to 12:30. Lunch

12:30 to 3:00. Rest (including toileting)

3:00 to 3:15. Tabletop activities, games, music, or general indoor play

3:15. Departure of first bus

3:15 to 3:45. Outdoor play or, in inclement weather, indoor, listening to stories or music, looking at books, etc.

3:45. Departure of second bus

Observation on Content of the Program

The curriculum summary sheets provided a quantitative measure of the approximate amount of time spent in various activities. Just as important but more difficult to describe objectively is the qualitative content of the program. For this description we relied upon the pooled impressions of the research team and the narrative observations recorded by the senior researcher.

General play

General indoor play, which occupied approximately 14 percent of the time the first year and 6 percent the second year, was usually unstructured, with the teachers interacting with individual children or with small groups of children, sometimes initiating or guiding play activities, sometimes stepping in to settle disputes. Besides the regular teachers and aides, the Head Teacher was frequently in the classroom. She often stimulated the children to dramatic, improvised small-group play. The following notes made by the senior research worker on observations made during a morning in March, 1965, reflect varieties of dramatic play and interactions between the Head Teacher and individual children:

> 9:40—The Head Teacher has entered the area and proceeds to play with Norma. The Head Teacher has seated herself in front of the doll crib, next to the whopper blocks, and there is some conversation, with the Head Teacher encouraging Norma to "put the dolls to bed." Norma enters in very actively, brings over a dish as if to feed the child (or herself).
>
> There is now a bit of confusion, with Greta trying to get into the episode. There is some tugging at the doll, and an argument, with Norma trying to hit Greta on the head with the doll. By now, Judith also approaches this section, tugging away at the kitchen implements, with a spoon sticking in her mouth. In the midst of the confusion, Judith seems to be able to make off with most of the equipment, and she proceeds very officiously to line it up on the table, as if making a place setting for a meal, getting ready to serve.
>
> After having interrupted her play with Norma, the Head Teacher returns, takes the same seat, and Norma approaches her with some of the kitchen equipment. Sarah (from another group) has joined them and is sitting on the Head Teacher's lap. Meanwhile, Clara, Greta, and Judith continue to play with toy implements around the table. Judith is very possessive with the toys, vigorously defends anything in her possession, and makes a gesture of protest against any child who tries to get equipment away from her. Judith performs an effective simulated stirring movement, as if she were preparing food by mixing it, then pouring it into dishes, then cleaning the dishes off—now very vigorously removing particles (make-believe) or scraping off the table with the edge of the spoon.
>
> I now notice one of the rare occasions when Judith appears to be offering some of the simulated food to another child, or perhaps inviting her into the setting or party-like atmosphere.
>
> 9:50—There is a dress-up episode developing with the Head Teacher, Greta, and Norma. Sarah has become a part of the group. Apparently this episode is developing into doctor play, because I just get the end of a sentence involving the word "doctor" and perhaps "baby." The Head Teacher is using the toy telephone and talking into it. There has been some hitting between Judith and Virginia. The Head Teacher breaks this up, saying words to the effect, "If you don't want her to do that, you can talk; she doesn't want you to hit her." Judith dissolves in tears, sits on the floor, and bawls loudly. The Head Teacher takes her by the hand and leads her away.
>
> The Head Teacher approaches with a toy stethoscope and puts it around Judith's neck, but Judith will not be consoled.
>
> The Head Teacher stimulates dramatic play on the doctor theme and asks, "Does anybody want to be a doctor?" Now the stethoscope is around Greta's neck, and she is making a primitive effort to examine Virginia. Virginia continues to sit on the Car-Go trike during the examination, with a large doll, and now Greta is applying the stethoscope to the chest of the doll. Meanwhile Judith appears to have regained her composure. There is a steady line of chatter between the Head Teacher and the three children in this group.
>
> The Head Teacher has Sarah on her lap, and Greta is again doing some doctoring. Judith, who is now quiet, is dressing up in a long, fancy sort of white robe and has rejoined the group.
>
> 9:55—The doctor play continues. The Head

Teacher has lifted Sarah and put her on a chair. Greta wants to examine her but Sarah objects. Judith is drifting. Donald (at the table) appears to be working quietly and steadily at his paper punching.

Renee (from another group) now wanders into the doctor play, right thumb in mouth, and looks on as if wanting to join in or perhaps is just curious.

Norma has the stethoscope and has put the ends in her ears in approved fashion.

A teacher ushers Renee back to her proper section. The doctor-play group is reconstituted, and Norma is examining Sarah on the Head Teacher's lap. Judith wanders off, in her sort of dress-up stance; she has gotten one of the little black purses, which she carries on her wrist, and is now busy buttoning up the large white coat, which has many buttons.

Judith has now been handed a white straw hat, with a broad red ribbon that goes under the chin. She is quite a striking figure, dressed in white, with a black purse and a huge ribbon under her chin.

To the above excerpts we must add an explanatory note: Norma was one of the most backward children in the nursery and one who was very difficult to reach. Next to her brother, she had the lowest initial test score (Stanford-Binet IQ of 66), a poor attendance record, and a slight command of language. If any child in the group deserved the label "culturally deprived," Norma did. Any success in bringing Norma into close contact with teachers and into a group–play situation involving some use of materials and participation in dramatic play must be considered a real achievement, not only for the Head Teacher but for all the teachers and aides who came in contact with this child.

Structured and circle activities

These activities (comprising about 9 percent of the time recorded in observations made in the first year and 7 percent in the second year) involved story-reading, music, rhythms and dancing, games, puppet shows, cooking, and didactic games. It was obvious from the materials used and the procedures followed by the teachers that many of the circle activities were carefully planned. Often special flash-cards, cut-outs, illustrations, and the like were used by the teachers and were worked purposefully into the circle activities and games, so that these materials and techniques had the potential of inviting a high level of didactic play. As would be expected, the children did not always pay close attention or respond as well as would have been desired, so it is difficult to gauge the impact of these games and play lessons.

It was obvious that, at the start, the children were not familiar with books and not used to being told stories. At first the teachers would just show the pictures in the storybooks and talk a little about them, relating them to objects familiar to the children. Gradually the children became interested and wanted to look for themselves, find familiar things in the books, and show them to the teacher.

During the second year, when the children's attention span had increased and they were familiar with the process of story-reading and storytelling, their ability and pleasure in listening improved.

Music was another frequent activity in the structured and circle activities category. Different types of musical activities were used, especially by two teachers who had strong interests in this area. One teacher liked kindergarten-type music, using circle games and songs, etc. The other was more interested in the expressive use of music. For instance, after the children had visited the zoo, she would play various musical themes and ask the children what animals they sounded like. Or she would ask the children to pretend they were a certain animal, as she played an appropriate musical accompaniment.

Tabletop activities

These activities, comprising approximately 11 percent of the time the first year and 7 percent the second year, were generally less structured than the circle activities. There was cutting and pasting, playing with dough, nailing and pounding, working on puzzles, playing lotto, stringing beads, playing with small blocks, or looking at books. The teachers helped the children individually as needed and directed the playing of games.

Outdoor play

Outdoor play comprised approximately 18 percent of the time the first year and 24 percent the second year. The increase in the second year was attributable in part to there being more warm weather and in part to difficulties with the air-conditioning system.

This sort of activity involved considerably less interaction with teachers than did indoor play. Occasionally a teacher or aide would organize a game but, for the most part, the play was "free" and involved a good deal of desultory running around. Swings were among the most popular types of equipment, as were toys that moved, such as a wagon and tricycles. The sandbox was another popular item. The children did not pay as much attention to the various stationary toys, such as the free forms, concrete turtles, or the jungle gym.

Meals and snacks

The nutritional aspects of the meals will be described briefly below, under "health maintenance." Here meals and snacks will be discussed only in their social context.

For the most part, the handling of children during meals was fairly permissive, in accordance with the usual practice of good nursery schools. Reluctant eaters and dawdlers were encouraged to finish their meals before getting their dessert, and all were encouraged to try new foods. But when a child was obviously not hungry or did not want a particular food, the teacher did not press. The atmosphere during lunch and snacks was friendly and casual. For the most part, the table habits of the children were orderly and good. Toward the end of the first year and during the second year the children helped set the tables, hand out the food, and clean up—all of which they seemed to enjoy doing.

Flowers or objects that the children had made were used as center-pieces for the tables and were sometimes used as stimuli for conversation. In general, however, little effort was made to encourage talking during meals or to engage children in conversation about food. Relatively little conversation was initiated by the children themselves.

Rest

Rest periods took up a rather large part of the school day—according to our observations, about a third of the time during the first year and 40 percent in the second year. Rest periods were not necessarily "empty" periods, however, since some of the children unburdened themselves at that time and expressed worries or fears, just as a small child might speak to his mother before going to sleep at night. The Director's comments concerning resting patterns during the second year are relevant:

> As the children became 4 they were more aware of family problems and concerned over them. For instance, the room had been darkened for rest one day. As a little boy was sitting on his cot removing his shoes, he picked up a doll's pocketbook, opened it, and in a very grownup voice said, "All I've got is this 10 dollars. We've got to pay the

man the rent, and we've got to have food."

There was great variety in the resting habits of the children. Some fell asleep almost immediately after lunch; some were seemingly overtired and found it difficult to relax. Some had to have an adult by the bedside. About four children found it difficult to sleep at all. The teachers used their judgment as to when these children might leave for quiet play.

During the second year, two children who had difficulty napping were separated from the others during the rest period. One of the teachers engaged in some quiet activity with them at first and then eased them into sleep, often remaining with them. These were two children with special difficulties who came from stressful environments. The Head Teacher used this opportunity to give them the additional support of an adult's interest and warmth.

Toileting

As a rule, children were free to visit the toilet at any time during the day. When a child was in the toilet (a very popular part of the nursery for most of the children), supervision was usually provided by a teacher or an aide, and the children were encouraged not to dawdle and to "finish up." Conversation about toileting and body functions was not ordinarily pursued, even though broached by a child to a teacher or aide.

Curriculum Changes in the Second Year

There were no gross changes in the nursery program during the second year but, within the broad categories of the curriculum, changes were made to utilize the children's increased attention span, their adjustment to the school routine, and their more orderly and systematic behavior. Children were helped to carry through on more complicated projects, such as planting bean seedlings in small pots, transplanting them to the garden, and watering and nurturing them until they bore fruit. They were also given more opportunity to choose their activities, plan their activities with the teacher, and carry out responsibilities, such as putting chairs in a circle, putting away blocks, setting the tables for lunch, etc. There was an increase in what might be loosely termed "reading readiness" activities, such as listing the children's names and using symbols to represent the tasks each youngster had chosen to be responsible for.

The chief change in the curriculum was the addition of considerably more field trips. The children went to a post office to mail cards to their parents that they had prepared at school. They visited the railroad station, a fire department, a bakery, the National Zoo, the municipal wharf and marina, a farm, a grocery store, a lumber yard (for things specifically needed for the workbench), the University greenhouse, Rock Creek Nature Center, the Department of Commerce aquarium, and the Museum of History and Technology.

One strategically planned "field trip" was the visit to a nursery child's home. Here the children had their mid-morning snack on the front porch, saw some new puppies, and enjoyed a playhouse. (It was better than the real house, the mother said, because it didn't leak.) The Head Teacher reported that the excursion, as had been hoped, helped the rigid and withdrawn child who was the host to mingle more comfortably with the others. There were also many "walking trips" on or near the University campus to collect nature-study specimens or to see specific events, such as the raising of the flag. Some of the mothers, as well as teachers and aides, accompanied the children.

Two structural changes which occurred toward the end of the second year were a shift from eating in three separate groups to one common area (as would occur in kindergarten) and to using separate toilet facilities for boys and girls.

Teaching Styles and School Atmosphere

No two teaching styles are exactly alike, and it is not uncommon for styles to differ markedly even when teachers work side by side in the same room with similar children. In the Howard University Nursery School these differences were readily apparent after a few hours' observation. For example, one of the younger teachers seemed more consistently aware of the need to evoke speech on the part of the children, and more often than the other teachers sought to give words and expressions to children and to elicit them during times of general play. Another teacher was exceptionally calm with the children. Although she seldom exhibited enthusiasm in her engagement of the children in play, she nevertheless seemed to "wear well" and to have excellent rapport with them. A third teacher, while very well organized and highly skillful in managing unruly or disruptive behavior on the part of the more difficult children, displayed a somewhat "custodial" style in some aspects of her teaching role.

The overall atmosphere of the nursery was permissive and warm. Although the children were handled with firmness when behavior was markedly aggressive and clearly unacceptable to the general welfare of the group, we noted few occasions when emphatically firm handling on the part of the teachers (such as in coping with tantrums or in physically restraining a child from striking another) was needed or used. On no occasion did we see a child managed in a punitive or harsh manner. We observed no outbursts of anger or otherwise undisciplined behavior on the part of teachers or aides. The Howard University Nursery School was clearly a benign and pleasant setting for young children.

Health Maintenance Measures

The children did not have a daily health inspection as in some nursery schools, but the teachers were alert to signs of illness. If a child was sick and it was learned that there was somebody at home to care for him, he was sent home by taxi with an aide. If no one was at home, the child was placed in the isolation room of the nursery, with an aide in attendance. The University health facilities were available, and emergency needs were met by Freedman's Hospital, which is adjacent to the University. Parents were urged, and occasionally assisted, by staff members to keep clinic appointments for routine "shots" and to complete all health requirements for the children's entrance into kindergarten.

During the 2 years of nursery school there was the usual run of childhood diseases (measles, mumps, colds, chickenpox, etc.) and a few instances of contagious diarrhea, ringworm, impetigo, pinworms, and one case of scarlet fever.

As for meals, after the second week of the school's first year, a breakfast of cereal and milk was provided, since it had become apparent to the staff that many of the children were coming to school without breakfast. A noon meal was also served, consisting of such items as soup, vegetables, milk, meat, bread, jello, canned fruit, and peanut butter and jelly sandwiches. "Snacks" were also provided, as is usual in nursery schools.

School Attendance

The school year lasted 9 months (October through July) the first year, and 10 months (September through July) the second year, yielding a total of 187 school days the first year and 205 the second year. The average daily attendance at the school was about 75 percent each year. Individual attendance varied greatly, ranging from 26 to 95 percent of the time the first year and 9 to 95 percent the second year. During both years, attendance was highest in the first 2 months of the school year and lowest during December and January.

The attendance patterns of individual children that were established the first year were, by and large, carried over to the second year. Five children were among the "top 10" in attendance both years; seven were in the "bottom 10" both years. In no instance did a child in the bottom 10 the first year jump to the top 10 the second year, or vice versa.

As Table III indicates, there was a moderate relationship between attendance and SES level. In the first year, a third of the children from the highest and middle SES groups, as contrasted with less than 10 percent of those from the lowest group, attended most regularly. The least frequent attenders were concentrated in the families with the lowest SES rating. The picture was much the same in the second year.

The attrition of the nursery group over the 2 years was remarkably low. In the course of that time only two children were withdrawn from the school. In both cases, the withdrawal was due to the fact that the family moved a considerable distance from the school, and it was impossible to arrange suitable transportation for the child. A third child was withdrawn for 3 months in the second year in order that she could visit her grandparents in the West Indies. She was re-enrolled in the school for the final month.

Table III

ATTENDANCE AT NURSERY SCHOOL BY SES QUARTILE

Children's Attendance Records	First Year			Second Year		
	SES Level			SES Level		
	Top	Middle	Lowest	Top	Middle	Lowest
Top 10 attenders	3	6	1	3	7	-----
Middle group	5	9	4	3	6	6
Bottom 10 attenders	1	3	6	1	4	5
Total	9	18	11	7	17	11

Teachers' Opinions about Program Changes Needed

At the close of the second year (that is, at the end of the Project), the Director and the teachers were asked by the research staff how they would want to improve the program if they were to do it over again. The following points were made.

1. Shorten the length of the school day. (Although the children had a long rest period, the teachers had to be with them during this time. Therefore there was hardly a moment during the day when the teachers could relax. This situation was ameliorated somewhat the second year by giving each teacher a half-day off a week.)

2. Provide more focused, specific, and directly supervised training for the student aides and arrange for them to spend longer consecutive periods of time in the nursery. (With more adequate help from the aides, the day might not have been so tiring for the rest of the teaching staff.) Two teachers suggested that the ideal teacher-pupil ratio for work with children from low-income homes would be one teacher and a full-time trained aide for every five or six children.

3. Have more meetings for the teachers and the adult activities worker, at which individual children's progress and difficulties can be discussed and feelings about the program aired.

4. Provide more manipulative equipment, such as peg-boards; also a petty cash fund, so that purchases of small items can be made as needed.

5. Provide more floor space. Space limitations restricted some activities, such as water play and easel painting, and also necessitated a greater than optimal degree of regimentation.

6. Secure a more heterogeneous group of children. Some of the children who were among the most verbal at the beginning of the program did not seem to make further progress in language development. Perhaps they would have benefited more if they had had the stimulus of talkative, middle-class children.

It was the opinion of the research staff that all of the above points were valid. Points 1 and 2 reflect the teachers' expressed regret that they did not have enough time and energy to give as much individual attention and help with language development as they would have liked. Although the program was much like that of good, traditional-type nursery schools, there was less conversation with individual children—less supporting or initiating of conversations—than one would usually find in a university laboratory preschool that serves middle-class children or in a superior suburban preschool. The explanation may lie in the amount of attention to other aspects of the program that work with deprived children entails. However that may be, it seems likely that the teachers were right in thinking that more attention to language development was needed, for even at the end of the 2 years the children seemed to have less verbal knowledge and facility than comparable middle-class children.

VI. THE ADULT ACTIVITIES PROGRAM

ALMOST WITHOUT EXCEPTION, sponsors of preschool programs for low-income children stipulate that close cooperation with parents is important, if not essential, to successful work with children.[24] It is rare to encounter an effort in the field of early childhood education, especially if the client population is predominantly of low income, that does not make some provision for involving parents in the service.

The ways of involving parents differ. Sometimes the parents are joint partners in the day-to-day educational work of the preschool, being employed as full or part-time teachers. Sometimes the parents are given traditional parent-education courses. They are invited to attend lectures or to enroll in discussion groups dealing with such topics as methods of discipline, the father's role, feeding problems, sex education, and the like. Sometimes the parents are invited to join a parent-teacher association. Whatever the means, the minimal goal of parent involvement is to secure the friendly cooperation of the parents with the staff of the nursery school.

As has been said, the Howard University Preschool Project had a parent-involvement program that was carried on under the heading of "adult activities." Briefly stated, the objectives were:

1. To secure the cooperation of parents or parent substitutes in supporting and reinforcing the efforts of the teachers so as to promote the general intellectual and social growth of the children.

2. To support and reinforce the nursery-school experiences of the children by activities in their own homes.

A widely held view among practitioners and program planners is that parent education for low-income families is more promising when it is organized around activity programs rather than discussion groups or lectures.[25] This was accepted as a guiding principle in setting up adult activities in the Howard Project.

In planning this program it was decided to avoid the term parent education and to treat the parents, despite anticipated handicaps and limitations, as competent partners in the nursery school endeavor. They would be invited to join with the staff in working for the present and future welfare of their children. It was not expected that the parents' chief aim would be their own improvement, such as acquiring abstract knowledge of child behavior or securing satisfaction from working with experts and receiving approval from them. Rather, it was hoped that they would enter into the activities in order to improve the lot of their children and to help the school to help the children. In other words, the appeal would not be "You need our help to become better parents" but rather "We need your help in doing a good job with your children." It was in line with this approach that the staff members chiefly responsible for contacts with the families were called adult workers rather than parent educators.

---

[24] For varied expressions of this view, see among others the following: Benjamin Bloom, Allison Davis, and Robert Hess, *op. cit.; Training Home Economics Program Assistants to Work with Low-Income Families,* No. PA-681, U.S. Department of Agriculture, Federal Extension Service, U.S. Government Printing Office, Washington, D.C., November 1965; *Services for Families Living in Public Housing,* U.S. Department of Health, Education, and Welfare, and U.S. Housing and Home Finance Agency, U.S. Government Printing Office, Washington, D.C., July, 1963; and Louise Proehl Shoemaker, *Parent and Family Life Education for Low-Income Families,* Children's Bureau Pub. No. 434, U.S. Government Printing Office, Washington, D.C., 1965.

[25] Ivor Kraft and Catherine S. Chilman, *Helping Low-Income Families Through Parent Education: A Survey of Research,* Children's Bureau, Department of Health, Education, and Welfare, 1966.

There were two adult workers on the Project staff—one full time and the other part time. The chief worker had been trained in social work; the other was a young teacher who, among other duties, regularly escorted the children to and from school in the bus the school provided.

The professional style of the chief worker was warm and pleasant, and her appearance and manner were decidedly upper-middle class. There can be little doubt that she was accepted and respected by most families in the Project. A year after the children had completed nursery school, the mothers still spoke of her with warm admiration and enthusiasm.

The assistant adult worker was less experienced than her chief in public relations or social-work types of activities. Her manner, however, was very pleasant. She was well liked by the parents and had a friendly, engaging style in dealing with them.

During the first 2 months of the first year, one of the senior research workers took part in the group meetings with parents, group work being one of his professional competencies. Playing this double role of researcher and practitioner did not prove to be feasible, however, and was soon abandoned.

The adult activities that were carried on were of two types: group meetings or other activities at prearranged times, and individual contacts with families, sometimes by appointment but usually unscheduled.

The Group Meetings

Prior to the opening of school, an orientation meeting for parents was held, with 22 of them in attendance. The Head Teacher described the nursery school program, and the parents were requested to help with special projects. The parents selected Wednesday afternoons and Saturday mornings as the most convenient days for future meetings, though it was clear that no one time would suit all parents. Evening meetings were seldom held, being inconvenient for most of the parents.

During the first school year, 49 group meetings were held, including the usual weekly meetings which involved the activity projects. This figure included special trips and parties.

The Howard University Department of Home Economics provided ample space and equipment for the adult activities program. Parents occasionally commented on the pleasantness of the surroundings. From time to time special transportation arrangements were made for parents who had difficulty in getting to and from meetings, although this was not done routinely.

Parents were encouraged to bring their children to the group meetings, and arrangements were consistently made to provide special supervision for the children. The supervisor was usually a graduate student in the Howard University Department of Home Economics. When a large number of children attended, more than one such assistant was employed. The children were permitted to play with the toys, stories were read to them, light snacks were furnished, and organized games and play activities were encouraged.

A typical group meeting lasted 2 hours or more. It usually included a series of activity projects and a visit to the nursery premises to see the latest work of the children or to watch the children from the observation booth. A staff member was present to answer parents' questions and to explain what was going on in the nursery school. At the conclusion of each meeting, punch or coffee and cookies were served. Occasionally there was a brief talk by the adult worker or other staff member concerning some aspect of the nursery program. Once each year a film on child development was shown, followed by a discussion led by the Head Teacher.

During the group meetings there was usually spontaneous discussion and conversation among the parents, centering mainly on their children, especially those who were attending the nursery school. The parents often volunteered information about progress and improvement in the children's behavior, frequently attributing this to the beneficial influence of the school. They were also quite free in discussing their children's problems, such as enuresis, temper tantrums, finicky food habits, or difficulties with siblings. Other problems, such as shopping, job training, and family planning, were also occasionally brought up by the parents. The mothers would often give suggestions to one another, and staff members gave specific advice on rearing children.

The following kinds of activities were undertaken during the first year's meetings: making washcloths, sewing smocks, painting nests of tin cans, making lotto games, unpacking and sorting books, decorating wastebaskets, making doll clothing, ironing sheets, fashioning decorations for Easter and Christmas parties, preparing desserts for the nursery school, mending children's clothing, fingerpainting, making book ends, planting flowers, preparing skirts for use in the children's dramatic play, keeping a scrapbook of parent activities, sanding and painting equipment for the playground. Parents were encouraged to borrow books and games from the school for use at home. Fathers were helpful in assembling and repairing toys and painting outdoor equipment.

In lieu of the meetings at Howard University, there were occasional meetings in the neighborhood to accommodate the parents who might be able to attend a meeting close to their home but who could not come to Howard University. (Although the university was within walking distance for some parents, it involved a bus ride of 10 or 20 minutes for others.) Several mothers volunteered or were asked to hold meetings in their homes; they seemed to take pride in doing so. Sometimes two mothers shared the responsibility for serving refreshments.

Beside these weekly meetings, several "special activities" were planned. In the first year these consisted of the following:

1. The library project. A visit was made to the main branch of the Washington, D.C., public library that was located in the neighborhood where most of the parents in the project lived. A special story demonstration was conducted by the children's librarian, and the mothers filled out forms for library cards. The Extension Division of the public library provided a book service that enabled parents to borrow books for their children.

2. Consumer exhibit. On one Wednesday the mothers attended a fashion show at a suburban shopping center. Children from that area modeled clothing made by their parents.

3. Christmas party. Mothers, fathers, and siblings attended this festive occasion, where there was group singing, and a Christmas program was presented by the nursery children.

4. Easter party. The children presented a program, and the new playground was officially opened.

5. White House tour. This popular trip was suggested by the mothers.

6. Family night. This was the culminating and most successful activity of the year,

held late in July. Parents contributed to the picnic-type supper, helped with the food preparation, serving, and cleaning up. One father led the group singing. On a tour of the nursery school the parents saw the art work of their children exhibited, as well as items made by parents for the school and the scrapbook of parent activities.

7. Family exchange. Parents contributed books and outgrown clothing to other children in the Project who could use them. Some of the clothing was received from friends of the university and was distributed to children in the neighborhood, not necessarily connected with the Project. This process of sharing and helping each other seemed quite important to the mothers.

Apart from the group meetings, some mothers also assisted in the nursery school program. They were not employed on a regular basis as aides or helpers but occasionally certain parents were invited to help in serving meals, helping to toilet children and prepare them for their naps, storing cots after naps, and reading to the children. Parents also acted as chaperons or assistants when the children went on "trips."

At the beginning of the second school year, a committee selected by the mothers met with the adult worker to decide what type of adult activities would be most desirable during the second year. It was decided that there should be fewer group meetings and that more emphasis should be placed on the policy of encouraging parents to visit the school individually, talk with the teachers, and assist in the nursery school. As a result, 23 group meetings (less than half the number that were scheduled the previous year) were held in 1965–66.

The meetings in the second year were of the same general sort as those held previously. Three meetings were devoted to planning and discussing the adult activities program. They were combined with some other activity such as unpacking and sorting books, making cookies, and repairing toys. Five meetings were devoted to sewing. (Some mothers had specifically asked for assistance in making children's clothes out of discarded dresses. A graduate student in home economics helped them with this project, which included instruction and practice in using an electric sewing machine.) One meeting focused on a parent-staff discussion on how the 4-year-old behaves. Several meetings were devoted to making Christmas and Easter decorations and to compiling a cookbook of low-cost, nutritious recipes. Two neighborhood meetings were held, one of which involved group singing and playing of games. The rest of the meetings centered on trips to the public library, the Smithsonian Institution, and a department store at Christmastime and to parties for Christmas, Easter, and Family Night.

Attendance at group meetings

As might be expected, the attendance was largest at the "special occasion" meetings, such as the orientation meeting at the beginning of the first school year, when 21 mothers, one father, and two relatives attended, representing 24 of the 36 families. The Christmas parties were attended by 15 to 20 parents and 8 to 10 siblings. The Easter parties were almost as well attended. On Family Night, which was the most "gala" occasion, over 20 parents were present (including six fathers the first year, and five the second year) plus about 15 siblings and several relatives.

At the other group meetings, attendance ranged from one to eight parents per session both years, with an average attendance of four. There was little shift in attendance patterns between 1964 and 1966. The same 11 families accounted for three-fourths of the total attendance at group meetings in 1964–65 and about two-thirds of those in 1965–66.

The main difference in attendance patterns between the 2 years was that in the second year slightly fewer parents attended frequently and more did not attend at all. For instance, there were eight families who came to at least 30 percent of the meetings the first year, while only five families attended as frequently in the second year. In the first year there were three families that were not represented at any meeting, while there were five such families the second year. There was only one family that did not attend any meeting either year.

There was some association between attendance and the socioeconomic rating of the family, as Table IV shows. During the first year, none of the nine mothers who were classified at the lowest socioeconomic level attended more than four of the 49 meetings, while eight of the nine whose socioeconomic level was the highest attended five or more meetings, four of these mothers being present 10 or more times. The 18 mothers in the middle group were evenly divided below and above the five-meeting level.

Table IV

NUMBER OF FAMILIES ATTENDING STATED NUMBER OF GROUP MEETINGS BY SOCIOECONOMIC LEVEL

Socio-economic Level	First Year		Second Year	
	Attended 5 or more meetings	Attended less than 5 meetings	Attended 4 or more meetings	Attended less than 4 meetings
Top quartile	8	1	6	3
Middle	9	9	6	11
Lowest quartile	---------	9	1	8
Total families	17	19	13	22

In the second year there were less than half as many meetings as in the first—23 instead of 49. Only 13 out of 35 mothers attended four or more of them, and these were about evenly divided between the top and the middle SES groups. One mother who attended more than three meetings belonged to a family that was especially poor. Seven mothers did not come to any meeting, four of them being rated as belonging to the lowest socioeconomic group.

In general, then, the mothers whose level of living was the lowest were the least likely to attend meetings. Actually, however, only four mothers in all were really frequent attenders.

A possible cluster of conditions might account for the relationship between socioeconomic level and attendance. The families in the highest and the middle SES groups were probably closer to having middle-class ways of life, in which some degree of participation by parents in their children's education is expected. They may have had greater hope that schooling would be a means for increasing their children's chances for a good life. Or they simply may have had more reserve energy, both physical and emotional, or more opportunity to arrange for absences from home.

It should not be assumed, however, that motivation (or lack of it) to participate in the adult activities was determined chiefly by degree of the parents' concern for their children's welfare. No doubt this was the main motivation for some of the parents. But there were also families in which support and approval of the school seemed high but attendance at school-sponsored events was infrequent.

For example, one mother in the lowest SES group seemed to have a positive attitude toward the school from the start, sent her twin children regularly, and was always disposed in a friendly way to staff members and researchers. The fact that she attended only three meetings in the first year and one in the second year seems explainable by the fact that she was the head of a family of four children who were under 4 years of age when the Project started. It took considerable effort on her part to come to even four meetings.

Actually, evidences of hostility or lack of amiability in dealing with the nursery school staff were extremely rare. Almost invariably, parents were cordial and pleasant when visited or telephoned by staff members and research workers. They repeatedly expressed regret at not being able to take a more active part in the activities supportive of the school.

In the exceptional cases in which there was reluctance or unwillingness to cooperate with the school, we suspect that it had more to do with psychological or social problems in the life of the parents than with indifference or hostility toward the Project. For example, one mother gave the appearance of being a seriously depressed woman. Often she could not mobilize enough energy to have her child ready when the school bus arrived. After numerous warm and cajoling invitations by the adult worker, this mother did manage to attend four meetings during the first year. She seemed to enjoy the meetings she did attend.

There were a few other families whose apathy and general disorganization were reflected in poor attendance at group meetings. For the most part, however, the idea that low-income families are indifferent or even hostile to schools was not substantiated by the experience of the Howard Project. From the outset, most parents were highly sympathetic to the nursery school and proud to have their children enrolled in it.

Attendance of fathers

Parent education programs for low-income families have not usually been successful in securing the cooperation of fathers. In comparison with other programs, the Howard Project did not do poorly in this respect. To be sure, it was usually the mother who attended group meetings, which by and large were held during the day. However, there were two fathers who attended meetings although their wives did not. Both of these fathers were classified as belonging to the middle SES group.

Turning to more typical situations, we find that during the first school year 12 fathers came to at least one group meeting. The maximum number of meetings attended by any one father was four. Most fathers who attended at all came only once or twice. During the second year, 11 fathers attended at least one group meeting; four of these were fathers who had not attended any meetings the first year. As to SES level, only fathers from the highest and the middle SES groups attended the first year, but in the second year, three of the seven fathers in the lowest group came to at least one meeting.

Some fathers participated, however, in other ways. Some visited school on their day off from work. Some helped repair toys and paint the playground equipment. Two came to school for the first few days of the first school year, when their children were having separation problems. Several provided transportation for other parents to "special occasion" meetings. One went on the White House tour; one supervised the children's play at an Easter party; one led the singing at several group meetings. The few fathers who attended discussion meetings joined in the discussion and made pertinent comments about their children.

In both years combined, 18 of the 28 fathers or father-substitutes came to group meetings at the school or visited the school. The maximum number of meetings attended by any one man was eight. One father attended five meetings, and two attended four times. All of these relatively frequent attenders were in the highest SES group.

Individual Contacts

Besides the group meetings, the other integral part of the adult activities program was what we have called "individual contacts." These, typically, were unscheduled but involved more than incidental or trivial remarks or conversations. All staff members who had dealings with parents or relatives were asked to report these contacts on a special form, giving the date, time, place, and circumstances, as well as a two-or-three-sentence description of what took place. These records were apparently prepared regularly, usually by the adult workers. The majority of these individual contacts were initiated by the school. Most of them had to do with giving information, making inquiries about the children or their families, or requesting specific assistance from a parent.

The parent-initiated individual contacts generally involved giving information about the child and/or family, observational visits to the school, offers to help the school in some way, or expression of regret for not being able to attend a meeting.

There was a decided increase in the number of individual contacts in the second year, the total number increasing from 322 in the first school year to 583 in the second. This was in part a reflection of the decision by staff and parents to decrease the number of group meetings and put more emphasis on the school's open-door policy, whereby parents were encouraged to drop in whenever they could.

In the second school year the parents were more apt to take the initiative in supplying the school with information about the children or themselves. Conversely, the staff made more inquiries about the families than about the children. This may indicate that by the second year the staff had become well acquainted with the families as families, not just as parents of the nursery-school children.

Another interesting shift in the pattern of individual contacts in 1966 was the increased number of instances in which parents offered to assist the school in some way. These offers frequently resulted in a mother, a sibling, or some other relative assisting in the nursery school classroom or in the adult activities workroom. Thirteen mothers, one sibling, and one aunt helped in the classroom during the second school year.

Examples of some of the reasons for individual contacts were enumerated by the adult worker as follows:

Discussion of financial problems

Help with carfare or transportation arrangements

Provision of clothing for needy children and other family matters

Discussion about problems in child rearing

Referrals to agencies for health problems

Visiting families during times of illness, both at home and in the hospital

Discussion of family problems, such as conflict between parents

Discussion of school problems of siblings

The families whose socioeconomic rating was the highest initiated proportionately more individual contacts in both years than did the other two SES groups. Conversely, the lowest SES group initiated the fewest individual contacts. There was, however, some increase in the number of parent-initiated contacts by the middle SES group in the second year. Moreover, in all groups the total number of families that initiated contacts increased during the second school year.

An entirely different picture is presented when school-initiated contacts are related to SES level. In both years a larger proportion of the lowest SES families than of highest SES families were contacted frequently by the school. This reflects the more frequent problems in the former group.

For instance, the family that received the highest number (21) of school-initiated contacts the first year and the second highest (15) the second year was one of the neediest families in the project. The child was definitely undernourished, and the teachers reported that during the first year of nursery school he ate ravenously. During a period when the father was in jail, the family was often without food. School contacts with this family involved discussions of job training for the mother and efforts to secure food stamps and welfare assistance. Considerable time was also spent in taking the child back and forth to a clinic.

Another low SES family had few individual contacts with the school during the first year but received the largest number in the second year. This large increase was due chiefly to a prolonged crisis involving the children's health. Following hospitalization, the family had great difficulty in securing clearance from the health department for the children's return to school. The family problems were further complicated by the fact that another child in the family became seriously ill and, in a family altercation, the mother shot her husband in the leg. This combination of difficulties led the adult worker to assist in getting the twins to the clinic and securing their clearance for return to school.

Impressionistic Evaluation of Adult Activities Program

The research plan did not call for a systematic evaluation of the adult-activities program but some of the impressions of the research staff may be worth communicating.

In our view the Project was reasonably successful in attaining the adult-activities program's first goal—cooperation of the parents. The relationship between staff and parents was excellent, and the parents were clearly pleased to have the children enrolled in the school. To what extent the good parent-staff relationship was due to the individual contacts, the group meetings, or the festive-occasion parties at the school, or to a combination of all three types of activities cannot be determined. The decision to have fewer group meetings the second year and the increased responsibility that the parents took the second year in contacting the school suggest that individual contacts, participation in the nursery school, plus the few activity-oriented projects that the mothers themselves suggested (e.g., the sewing project) and the usual holiday celebrations at school were a more successful combination of activities than trying to have a group meeting every week.

It should be pointed out, however, that the routine group meetings, although not usually well attended, seemed to have a good deal of significance for about a fourth of the mothers. At the end of the second year, the mothers were asked at two meetings to respond to the question: "What has the Program for Children and Parents meant to me?" Although their replies may have a testimonial tinge, they are suggestive of benefits derived from nursery attendance that go beyond the IQ changes that are reported in the next chapter.

> By discussing problems your child has, you find that other parents have the same problems with their children . . . that the 3 and 4 year old child wants to do things for himself without much help from parents . . . . Children learn how to meet others . . . they learn to share. Cindy was shy and selfish before coming to the nursery school. She talks now and is not selfish. I have enjoyed meeting the other parents and working with them. I did not know any of them before the program started.

> Andrew is a better child now and is interested in more things. He is friendly and plays better with other children. I enjoyed the sewing project and the family night. Above all, I enjoyed observing the children to see how they act and what they were doing in school. Having Mrs. T_______[the Head Teacher] explain the activities to parents was very helpful. I like the discussions.

They have helped me to understand the other children better.

Abigail gets along better now with her brothers and sisters and the other children in the neighborhood . . . The average person thinks the child is afraid of the teacher when she starts to school, but she is actually afraid of the other children . . . I appreciate everything the nursery school has done and I'll miss it. I'll miss the parents and the activities.

I have enjoyed working with the children in the nursery school . . . I think I get a better understanding of my own children from working with the nursery school children . . . I have met more people since I started working with the parent group. I had lived in that neighborhood and had not met anyone . . . After I started coming to the school I met many people.

I have enjoyed meeting the parents and the teachers. I like to come up to school. I like the trips, especially to the library.

The nursery school has helped Teresa to think. Her conversations now make sense. She can make decisions . . . She shares more now and is not as selfish.

Prudence talks more. She has more opinions of her own . . . I like this nursery school because the children get more individual attention. . . .

Vernon did not like milk before he came to the nursery school . . . He eats foods he didn't like before he came to nursery school . . . He likes other children and isn't shy with strangers.

Jerome has learned so much . . . He knows the names of so many objects . . . One of the things I enjoyed so much was the Family Night we had last summer.

I was surprised at the progress Donald made in the nursery school. He has learned to get along with other children—not only the nursery-school children. I feel that one of the biggest mistakes parents make is trying to push their children too fast. I enjoyed the family night and meeting all the parents and the teachers. I like the idea of holding the meeting in the nursery school today. We can see where the children go to school and see the work done by all of them. (Comment by a father.)

All of the above comments were made by parents who were in either the highest or the middle SES group. We do not know whether the meetings could have been made more meaningful for the lowest SES families or whether their burden of routine living was so heavy that they would not have attended many meetings, regardless of content. It is obvious from the records that a feeling of sharing and camaraderie developed among the mothers who attended fairly frequently. This may have contributed to their cooperative spirit toward the school programs and the staff.

To what extent did the adult activities program fulfill its second goal, that of reinforcing the nursery school experience in the home? Unfortunately we have no basis for answering that question. It is true that books and games were borrowed and taken home but we do not know the extent to which they were used. As will be shown later, there was no relationship between parents' participation and the extent of their children's increase in IQ. However, it is possible that the adult activity program may have sparked interest and knowledge that will bear fruit in future years.

Although shifts in child-rearing attitudes and practices were not an explicit goal of the adult activities program, the staff felt a sense of accomplishment when they noticed that the relations between parents and children apparently became happier and more relaxed. In summarizing her report of the last group meeting, the Head Teacher commented: "From a teacher's point of view, the acceptance and apparent enjoyment of their children was a far cry from the harsh authoritarian attitude of these parents during the initial play sessions in 1964." It would be difficult to determine whether this represents a true shift in parental attitudes or whether it was a reflection of the situation. At this final meeting the parents were "among friends," while 2 years previously they did not know each other and the staff, and they also probably realized that the play sessions were actually tests.

One further comment about the adult activities program. In practice it was more didactic and less a meeting of "partners" than it was in theory. One could see that, to a large extent, the parents looked on the staff as experts and expected them to impart their knowledge. The staff were creative in using spur-of-the-moment situations to "slide in" certain child-rearing precepts while talking with the parents. For instance, whenever a mother observed her child from the observation booth, a teacher was available to interpret what was going on, to answer questions, and to explain why a particular behavior problem was handled in a certain way. Perhaps this approach was necessary and was highly desirable. It was not, however, quite the way of relating to parents that had been decided on at the start.

VII. TEST FINDINGS AND ASSOCIATED FACTORS*

WITH THE NURSERY SCHOOL and adult-activities program described and the characteristics of the children and their families identified, we are now in a position to consider the Project's accomplishments. At present writing, this report on accomplishments must be limited to telling how much the nursery school children's intellectual functioning improved during the 2 years in nursery school, as contrasted with the children who did not attend. Eventually, we shall want to know whether the improvement that was achieved carried over into the later school years and whether the nursery school children did better than the comparison group in elementary school. At present, however, we can gain some indication of whether or not the nursery school program helped the youngsters to acquire certain skills that should stand them in good stead when they enter regular school. Such basic achievement-related skills as language usage, perceptual discrimination, concept formation, sensorimotor coordination, comprehension of verbal directions, memory and number skills can be measured—albeit imperfectly—by standardized tests. The results of such tests provide a means of evaluating some of the short-term benefits of the Project.

The Tests

For measuring the children's skills, the following tests were used: the Stanford-Binet Intelligence Scale, the Peabody Picture Vocabulary Test, and certain subtests included in the Merrill-Palmer Scale and in the Illinois Test of Psycholinguistic Abilities.

Several decades ago psychologists would have questioned the desirability of using intelligence tests, such as the Stanford-Binet and the Merrill-Palmer, to measure differences between groups in the acquisition of "achievement-related skills." In the first part of the 20th century, many psychologists viewed intelligence as genetically fixed and unresponsive to an individual's motivation or to his prior educational and cultural experience. The shift from this deterministic point of view to one that sees an individual's manifest intelligence as a complex interaction between genetically determined potentialities and the individual's encounter with his environment has been admirably summarized by Stott and Ball.[26] The influence of motivational and environmental factors on intelligence test scores and the cultural bias of tests in favor of middle-class children are now well documented.[27]

---

[26] L. Stott and R. Ball, *Infant and Preschool Mental Tests: Review and Evaluation,* Monograph of the Society for Research in Child Development, No. 101, 1965.

[27] See A. Anastasi, "Racial Comparisons: Problems of Measurement" in *Differential Psychology* (3rd Ed.), Macmillan, 1958; M. Deutsch, J. A. Fishman, L. Kogan, R. North, and M. Whitman, "Guidelines for Testing Minority Group Children," *Journal of Social Issues,* April 1964, pp. 129–145; Kennedy, *op. cit.;* M. G. Kline, J. Marshall, and E. Stansbury, *Stanford-Binet, PPVT, and Low-Income Preschoolers: New Pitfalls for Old Tests,* a paper read at the Annual Meeting of the Eastern Psychological Association, April 14–16, 1966; R. Dreger and K. Miller, "Comparative Psychological Studies of Negroes and Whites in the United States," *Psychological Bulletin,* 1960, pp. 361–402.

* This chapter was written in part by Eileen Toban, Research Associate, while a member of the Children's Bureau staff.

"Culturally disadvantaged" children often bring to the testing situation a variety of handicaps; e.g., home backgrounds offering minimal intellectual stimulation, low motivation for test performance, unfamiliarity with test objects, a wide range of personality problems, and fear or hostility toward examiners. The "unfairness" of giving intelligence tests to such children need not overly concern us here, however, providing we recognize that the scores from these tests do not give a valid measure of the learning capacity of the children but rather provide an indication of where these youngsters stand in relation to the more advantaged groups upon whom the tests were standardized. As Deutsch points out, " 'Culturally unfair' tests may be valid predictors of culturally unfair but nevertheless highly important criteria. Educational attainment, to the degree that it reflects social inequity rather than intrinsic merit, might also be considered 'culturally unfair.' "[28]

The Stanford-Binet Intelligence Scale (1960 revision)

This test was chosen for use in the Howard Project because it is one of the best constructed and best standardized tests of intelligence available. The test was standardized on over 3,000 white, native-born Americans from 11 States in different parts of the country. A wide range of social and age levels was represented in the standardized sample, although the distribution was slightly weighted in favor of the higher occupational levels.[29]

In developing the Stanford-Binet, Terman and Merrill tried to provide a method of obtaining "a general knowledge of the capacities of a subject by the sinking of shafts at critical points." [30] At the 2-to 6-year level, the test items involve a variety of skills, such as the identification of everyday objects and parts of the body, recognition of similarities and differences in objects, comprehension of simple commands, memory for digits, sentences, and pictures, as well as a variety of hand-eye coordination tasks, such as stringing beads, using a form board, block building, and copying a circle. Whether such a variety of tasks measures a general factor common to all age levels of the scale, as some factorial analyses suggest,[31] or whether the relations among the items can be explained most satisfactorily in terms of group factors, each contributing to the subject's total IQ, is still open to debate.[32]

Of crucial importance to our study are the reliability and validity of the Stanford-Binet at the preschool level. The Stanford-Binet tends to be more reliable for the lower than the higher IQ's and for older than younger children.[33] Even so, the reliability of the Stanford-Binet at the preschool levels is quite satisfactory. A correlation of .88 between alternate forms of the Stanford-Binet for children under age 6 is reported,[34] and test-retest scores between 3 and 4 have been found to have a correlation of .83.[35]

For many years, the Stanford-Binet has been regarded as the standard criterion, among psychological tests, for predicting academic achievement, particularly at the elementary and high school levels.[36] Most of the correlations between Stanford-Binet IQ scores and school grades, teachers' ratings, and achievement test scores, fall between .40 and .75,[37] indicating that the Stanford-Binet is a moderately good predictor of academic achievement.

---

[28] M. Deutsch, *op. cit.*

[29] L. M. Terman and M. A. Merrill, *Stanford-Binet Intelligence Scale,* Houghton-Mifflin Co., 1960, p. 15.

[30] L. M. Terman and M. A. Merrill, *Measuring Intelligence,* Houghton-Mifflin Co., 1937.

[31] See, for instance, Q. McNemar, *The Revision of the Stanford-Binet Scale,* Houghton-Mifflin, 1942; Frank Freeman, *Theory and Practice of Psychological Testing,* Holt, Rinehart, and Winston, 1962.

[32] L. V. Jones, "A Factor Analysis of the Stanford-Binet at Four Age Levels," *Psychometrika,* Vol. 14, 1949, pp. 299–332.

[33] A. Anastasi, *Psychological Testing,* Macmillan Co., 1961, p. 202.

[34] Frank Freeman, *Theory and Practice of Psychological Testing,* Holt, Rinehart and Winston, 1962, p. 215.

[35] *Ibid.,* p. 216.

[36] Freeman, *op. cit.,* p. 215.

The Stanford-Binet is better standardized and has greater predictive power than any other test in the battery used in the Howard Project. Other tests, or portions thereof, were used, however, to supplement the Stanford-Binet in specific ways.

The Peabody Picture Vocabulary Test (PPVT)

This test was included in the battery because it gives a quick measure of a child's ability to comprehend the meaning of words, without necessitating actual verbal expression. The pictures on the PPVT represent objects or activities or states of being. In administering the test, the examiner produces a stimulus word orally, and the child then points to the picture (one of four on a plate) that best illustrates the meaning of the stimulus word. The test therefore reports "receptive" rather than "expressive" verbal ability.

Reliability and validity studies on the PPVT are limited. Reliability coefficients ranging from .76 to .81 for preschoolers on alternate forms of the tests have been reported. Studies of concurrent validity show a .76 correlation between the Stanford-Binet and PPVT scores among a group of "educable" mentally retarded children, and correlations from .45 to .63 between the PPVT, California Achievement Test scores, and teachers' ratings of achievement for junior high school pupils.[38]

Merrill-Palmer Scale of Mental Tests (M–P)

This test was designed especially for use with preschool children and offers a variety of tasks that appeal to them. Because of time limitations, only part of the Merrill-Palmer scale was given in the study. All vocabulary items were omitted, since language facility was covered by other parts of the test battery. Thirteen subtests (yielding a total of 49 scorable items) were used. These primarily measure sensorimotor coordination and perceptual discrimination; e.g., fitting cubes into a box, completing various form boards, and a variety of picture puzzles, block building, and matching colors.

Speed is an important factor in many of these test items. Indeed, the emphasis upon speed in the Merrill-Palmer test has been criticized as one of its weaknesses. As Anastasi points out, "For the preschool child, speed has not yet become an important goal."[39] A factor analytic study of the Merrill-Palmer test[40] suggests that one factor, "willingness to cooperate," may be responsible for the degree of speed with which children complete many of the test items.

The Merrill-Palmer was standardized on 631 children in the Detroit area. The children who were the subjects were obtained from public and private schools, orphanages, day nurseries, child-care agencies, and health clinics. Within the standardization sample, a correlation of .92 was found between chronological age and total Merrill-Palmer score. Test-retest reliabilities ranged from .72 to .96, with intervals of 2 months or less.[41] A .79 correlation with the Stanford-Binet was reported for 159 children in the standardization group who were between 3 and 6 years of age.[42]

The Illinois Test of Psycholinguistic Abilities (ITPA)

This is a test of language abilities that has recently been developed to diagnose specific language difficulties in children between the ages of 2.6 and 9 years of age. Raw scores on each of the nine subtests can be converted to "language-ages," which are similar to the "mental age" concept used in the Stanford-Binet. The test is based on an elaborate and interesting communication model, which has been fully described.[43]

---

[37] A. Anastasi, *op. cit.*, p. 205.

[38] L. M. Dunn, *Peabody Picture Vocabulary Test Manual*, American Guidance Service, Inc., 1959.

[39] A. Anastasi, *op. cit.*, p. 291.

[40] John G. Hurst, "A Factor Analysis of the Merrill-Palmer with Reference to Theory and Test Construction," *Educational and Psychological Measurement*, Vol. 20, 1960, pp. 519–532.

[41] Stott, *op. cit.*

[42] Freeman, *op. cit.*, p. 314.

Two subtests from the ITPA were selected for inclusion in the present battery in order to gain more knowledge of the children's language skills—(an area of intellectual development that is often the most depressed in children from low-income families)—the auditory-association and the auditory-automatic subtests.

The auditory-association subtest measures the child's ability to relate spoken words in a meaningful way. This ability is assessed with a version of the familiar analogies test, in which the child is asked to complete the test statement by supplying the analogous word. For instance, "I sit on a chair; I sleep on a________"; "Coffee is bitter; sugar is________."

The auditory-automatic subtest, in contrast, is primarily a "grammar test" and provides an indication of the child's repertoire of automatic linguistic habits. The test's authors explain the importance of this skill in the following manner: "A frequent use of language . . . leads to highly overlearned automatic habits for handling its syntactical and inflectional aspects without conscious effort . . . Linguistically normal children learn these inflections in a rather systematic way."[44]

In testing this ability, the sentence-completion technique is again used; e.g. "Here is a hat. Here are two________." Other test items necessitate the use of increasingly more difficult grammatical construction, such as, "This cake looks good. This cake looks even________."

The ITPA was standardized on a group of 700 white children in the Decatur, Illinois, area who were aged 2 to 9 and had IQ's between 80 and 120. Reliability coefficients for test-retest intervals of 3 months were .72 and .79 for the ITPA-Auditory Automatic and the ITPA-Auditory Association, respectively, for a group of 69 9-year-olds. During the past 2 years, the ITPA has been the subject of a considerable number of studies examining its reliability, validity, and clinical usefulness.[45] In these studies, both the ITPA-Auditory Association and the ITPA-Auditory Automatic showed moderate correlations (.22 to .59) with Stanford-Binet IQ scores of children between 3 and 5 years of age.

In summary, the four tests in the battery we used varied in content, reliability, validity, and standardization samples. The Stanford-Binet has the longest history of wide use and impressive evidence of reliability. Findings from the other tests must be interpreted more cautiously, as evidence supporting their validity and reliability is less conclusive.

Administering the Tests

All testing took place at Howard University. Dr. Norman Milgram (Catholic University, Department of Psychology) selected the tests and directed their administration. Five graduate students tested the children in the first round, and four tested in the second and third rounds. All of these students had participated in a training practicum in which they used the tests with several disadvantaged preschool children. In each round, two of the testers were Negroes; the rest white. The majority each year were women.

---

[43] Samuel A. Kirk and James J. McCarthy, "The Illinois Test of Psycholinguistic Abilities—An Approach to Differential Diagnosis," *American Journal of Mental Deficiency,* Vol. 66, 1961, pp. 339–412; B. Bateman, *The ITPA in Current Research,* Institute for Research on Exceptional Children, University of Illinois, June 1965.

[44] J. J. McCarthy and S. A. Kirk, *The Construction, Standardization. and Statistical Characteristics of the Illinois Test of Psycholinguistic Abilities.* Institute for Research on Exceptional Children, University of Illinois, 1963.

[45] These studies are summarized in J. J. McCarthy and J. L. Olson, *Studies on the Illinois Test of Psycholinguistic Abilities,* Department of Exceptional Education, University of Wisconsin, 1964; B. Bateman, *op. cit.*

Throughout the testing, the Director observed the testers and provided any needed advice. In addition, he tested a number of children himself, chiefly those who presented difficulties. At the end of each day of testing, the testers scored the children they examined; these scores were then checked by an independent tester. The Director then reviewed any discrepancies that were found.

In testing, considerable attention was given to establishing and maintaining rapport with the children. If a child showed signs of emotional distress, testing was delayed until he appeared to be more relaxed.

In the first round, each child was tested in the presence of a family member, usually his mother. This person was told by the tester that the child would be playing some nursery games, and she was asked to remain silent regardless of what the child did with the games. To encourage silence, a number of picture magazines were placed near her seat.

The tests were administered to each child individually in a closed room in which the curtains were drawn and from which novel features had been removed. Although considerable effort was made to administer the tests in a standardized fashion, there were occasional distractions, such as noise in nearby rooms.

The severest handicap to standardized administration of the tests came from the fact that during the second and third rounds of testing the nursery-group children were accompanied to the testing room by a staff member, while the comparison-group children were accompanied by their mothers. Hence the testers knew to which group the children belonged. It is possible that such knowledge may have biased their administration of the test. The fact that the testers had no affiliation with either the nursery school staff or the research group probably reduced the likelihood of such bias, however.

Another possible testing bias in favor of the comparison group was that the nursery-group children were occasionally used as "fill-ins" for broken appointments of comparison-group children. This occasionally necessitated an interruption of the child's lunch or nap and may thus have caused a decrement in a few of the nursery children's scores. On the other hand, during the second and third rounds of testing, the nursery children may have possessed some advantage over the comparison group in that they were more familiar with the testing environment (the testing rooms were in the same building as their nursery school), whereas the comparison group children had to be taxied from their homes to the University for each round of tests.

The first round of testing was completed for both the nursery group and comparison group during the summer of 1964, prior to the nursery group's entrance into nursery school. Although in each round the testing took place over a period of 2 to 3 months, the bulk of it was done within 1 to 2 weeks. The additional time was needed to reschedule and test children who had missed earlier appointments.

In the first round of testing, all four of the tests described above were included in the assessment battery. Because of the number of tests involved and the age of the children, it was necessary to have two test sessions on separate days. The first session was devoted to a portion of the Merrill-Palmer test and the entire Stanford-Binet test, in that order. In the case of the Merrill-Palmer, three tests within the 18- to 23-month age span were used as rapport or "warm-up" items, since they are easy and appealing to youngsters. The second testing session was devoted to the remainder of the Merrill-Palmer, the PPVT, and the two subtests of the ITPA. We tried to hold the two testing sessions on consecutive days. If, however, parents and children were unable to meet this schedule, a longer interval (2 to 4 days) elapsed between the two sessions.

The second and third rounds of tests took place during May and June of 1965 and 1966; that is, after the nursery group had completed 1 and 2 years of nursery school, respectively. The test battery was shortened for these rounds so that each child's testing could be completed in one session. The Merrill-Palmer was omitted entirely in 1965. The Peabody Picture Vocabulary Test and the two subtests of the Illinois Test of Psycholinguistic Abilities were given only to the nursery group in 1966, as a means of noting their within-group improvement after 2 years of nursery school.

The Test Findings

Test scores at the start of the Project (*1964*)

On the first round of tests the average performance of the comparison group was slightly better than the nursery group on all tests, as Table V shows. This edge of superiority was attributable to the fact that, on the whole, the boys in the nursery-school group performed more poorly than any of the other three groups—the nursery-school girls and both sexes in the comparison group. For instance, the mean Stanford-Binet IQ for the nursery-school boys was 77.3, a score that was 6 to 9 points lower than the mean scores of the other three groups.

When scores for the two sexes were combined the difference between the nursery group and the comparison group was slight, the mean Stanford-Binet IQ scores being 82.7 and 84.6, respectively.[46] This was due largely to the fact that girls constituted 60 percent of the nursery-school group, and their scores thus had greater weight than the boys' in determining the mean scores of the group. The range of scores and the distribution of scores in the two groups were quite similar, as Table I has shown.

On the Peabody Picture Vocabulary Test, there was less disparity between the nursery-group boys and the other three groups than on the Stanford-Binet. The PPVT mean IQ scores were, on the average, 12 points lower than the mean Stanford-Binet IQ scores. (The correlation between the PPVT and the Stanford-Binet IQ scores was .51.) An almost identical finding is reported by Beller for a similar group of low-income children. He found PPVT mean IQ's to be 13 points lower than the Stanford-Binet IQ's.[47] Even greater disparity between PPVT and Stanford-Binet scores is reported by Kline *et al.* In their study of low-income youngsters, mean PPVT IQ's were 17 points lower than mean Stanford-Binet IQ's.[48]

Scores on the two subtests of the ITPA were very low for both the nursery group and the comparison group. Mean scores for both groups on the ITPA-Association and ITPA-Automatic tests were less than 1. On both tests, over 60 percent of both groups of children failed to answer any of the items correctly. Only one nursery-group child and six comparison-group children were comparable in ability to the "average" youngster of the same age in the standardization sample. This average child was able to answer correctly four of the ITPA-Association items, and three of the ITPA-Automatic items.

On the basis of these findings, it is tempting to state unequivocally that at the beginning of the project the children in both

---

[46] These mean IQ scores are similar to those reported by Kennedy et al., *op. cit.*, in their standardization on 1,800 Negro children in the southeastern United States. These writers report a mean IQ of 86 for Negro 5-year-olds.

[47] E. Kuno Beller, *Annual Report of Research in the Philadelphia Experimental Nursery School Project* (mimeographed), Philadelphia Council for Community Advancement, 1965.

[48] M. G. Kline, J. Marshall, and E. Stansbury, *Stanford-Binet, PPVT, and Low-Income Preschoolers: New Pitfalls for Old Tests,* a paper read at the Annual Meeting of the Eastern Psychological Association, April 14–16, 1966.

Table V

MEAN SCORES ON ALL TESTS FOR NURSERY AND COMPARISON GROUP BY SEX

	Nursery Group				Comparison Group			
	Male	*Female*	*Total*	*S.D.*	*Male*	*Female*	*Total*	*S.D.*
Stanford Binet IQ	(N=15)	(N=23)	(N=38)*		(N=32)	(N=35)	(N=67)*	
1964	77.3	86.3	82.7	11.5	85.3	83.9	84.6	11.8
1965	89.7	94.8	92.8	11.7	87.8	82.9	85.4	13.2
1966	96.9	97.7	97.4	10.4	89.8	87.7	88.7	12.6
Peabody IQ	(N=15)	(N=21)	(N=36)		(N=32)	(N=35)	(N=58)	
(PPVT) 1964	69.4	71.4	70.6	9.9	72.9	73.8	73.3	11.3
1965	75.0	74.8	74.9	13.3	70.7	64.5	67.5	14.9
1966	80.1	81.7	81.0	12.7				
ITPA-Association—mean raw score	(N=14)	(N=20)	(N=34)		(N=29)	(N=27)	(N=56)	
1964	0.1	0.7	0.4	1.2	1.0	0.4	0.7	1.6
1965	4.7	5.1	4.9	3.5	4.3	3.2	3.7	3.9
1966	9.9	9.0	9.4	3.4				
ITPA-Automatic—mean raw score	(N=14)	(N=20)	(N=34)		(N=29)	(N=27)	(N=56)	
1964	0.5	0.6	0.6	1.0	1.0	0.6	0.8	1.2
1965	3.7	3.1	3.4	2.9	2.9	2.7	2.6	2.1
1966	5.8	5.6	5.7	3.4				
Merrill-Palmer—mean raw score on 6 subtests	(N=15)	(N=23)	(N=38)		(N=32)	(N=36)	(N=68)	
1964	1.7	2.8	2.4	3.5	2.4	2.6	2.5	3.2
1966	21.9	21.7	21.8	4.8	17.8	17.3	17.5	6.7

* All N's are for 1964 testing; N's for other years are occasionally slightly lower.

groups were more retarded in language development than in other areas of "general intelligence." In both groups, the average child was half a year below the national average in general intelligence as measured by the Stanford-Binet,[49] but over a year below average in associative language ability, grammar, and understanding of the meaning of words.

A possible explanation of this discrepancy lies in the fact that the Stanford-Binet and Merrill-Palmer tests were given on the first day and the PPVT and ITPA subtests on the second day. The children may have performed more poorly on language tests, then, because they put forth their best efforts during the first day of testing and became more resistant to testing during the second session. This poorer performance on the ITPA subtests is, however, congruent with the findings of previous investigators. These indicate that children from low-income families are likely to have a lower level of verbal skills than middle-class children, even with controls for intelligence.[50]

Since only a portion of the Merrill-Palmer test was given, it is impossible to compare the scores of the children in our study with national norms. Suffice it to say that, as with the other tests in the battery the nursery-group boys did more poorly than any other group, while differences between the scores of the total nursery group and the total comparison group were minimal.

Intercorrelations among the tests, with nursery group and comparison group combined, ranged from .35 to .63. The highest correlations were: PPVT and ITPA-Association, Stanford-Binet and Merrill-Palmer, and the two ITPA tests. The lowest correlations were between the Merrill-Palmer and the two ITPA tests.

Changes in scores by the end of the first school year

By the end of the first school year, the mean scores of the children who attended the nursery school were significantly higher than those of the comparison group on all four tests. The figures are given in Table V. The differences between the two groups in the average amount of change on the various tests can be summarized as follows:

Stanford-Binet: The nursery children's mean IQ as measured by this test increased 10.1 points (from 82.7 to 92.8) as compared with an increase of less than one point in the comparison group's mean score (from 84.6 to 85.4).

PPVT: On this test, the nursery group's mean IQ increased by 4.3 points, while the comparison group's mean score decreased by 5.8 points. The decrease in the PPVT scores of the comparison group may indicate that deficits in language development, relative to the normal population, tend to become even more pronounced unless some form of environmental intervention takes place.

ITPA-Auditory Association and ITPA-Auditory Automatic: The nursery group made a significantly larger gain than the comparison group on both of the ITPA subtests. The nursery group's mean raw score (which is simply the mean number of questions answered correctly) increased by 4.5 points on the ITPA-Auditory Association test and by 2.8 points on the ITPA-Auditory Automatic test, as compared with approximate increases for the comparison group of 3 points and 1.8 points, respectively. Nevertheless, at the end of the 1965 school year the children in the nursery group were still nearly a year below normal in associative language ability and slightly over a year below normal in the proper use of grammar.

---

[49] The Stanford-Binet test contains many verbal items, but is not solely verbal, as are the two ITPA subtests used in our battery.

[50] See, for instance, A. Anastasi and R. D'Angelo, "A Comparison of Negro and White Preschool Children in Language Development and in the Goodenough Draw-A-Man Test IQ," *Journal of Genetic Psychology,* 1952, pp. 147–165; A. S. Carson and A. Rabin, "Verbal Comprehension and Communication in Negro and White Children," *Journal of Educational Psychology,* 1960, pp. 47–51.

Differences within the nursery group

When we turn to an examination of the scores within the nursery group, an interesting pattern emerges. As indicated in Table V, the greatest increment in IQ gain on the Stanford-Binet was made by the nursery-group boys. Their average IQ, it will be recalled, was especially low at the start of the project. The boys' mean scores improved by 12.4 points, as compared with the girls' average gain of 8.5 points.

When the sexes are combined and the nursery group is divided into groups above and below the mean, the increase by children with low IQ's is even more pronounced. All but one child whose IQ was below the mean in 1964 made some gain in 1965, the average gain being 13.9 points. In contrast, the children who were initially above the mean made an average gain of 6.2 points. A similar though less striking pattern was found in the PPVT scores. This greater gain made by the children with the lower IQ's is further discussed below, and also in Appendix A.

Changes in scores by the end of the second school year

By the end of the second year, the mean IQ of the nursery-school group was close to the national norm, being 97.4. Thirty of the nursery group children (or 90 percent) had, by the end of the second year, achieved IQ scores of 90 or above—as compared with only 11 nursery group children (26 percent) who had scores of 90 or above before the beginning of nursery school.

The mean score of the children in the comparison group was somewhat lower, being 88.7. In other words, the nursery school group had gained 14.7 points on the average in the 2-year period, while the comparison group had gained 4.1. Insofar as the comparison group was an adequate control, it would appear, therefore, that a mean gain of about 10 points in IQ was attributable to the efforts of the Project.

The superiority of the nursery group in performance and intelligence tests is further attested to by their achievement on the Merrill-Palmer. Six subtests of this test (which yielded a total of 29 scorable items) were given to both groups of children during the 1966 round of testing. When the results were compared with the 1964 scores for the same 29 items, it was found that the nursery children's raw scores had risen from a mean of 2.4 to a mean of 21.8, while the comparison group's shift was from 2.5 to 17.5. The nursery group's greater increase is statistically significant. This finding supports and supplements the Stanford-Binet results and leads us to conclude that over the 2-year period the children definitely benefited from attending nursery school.

A word should be said at this point about the fact that during the 2 years the children in the comparison group improved in mean IQ on the Stanford-Binet. Their average gain was not large (4.1 points) but it is a gain that is statistically significant.

One possibility is that of a practice effect. This possibility cannot be ignored, but the findings of several other studies[51] have shown that there is practically no practice effect on IQ scores over a 1-year period for children of this age. It will be recalled, too, that the comparison group's average score increased significantly only on the third round of testing.

Another possibility is that some of the comparison-group children attended other nursery schools or day care centers. Inquiry about this was made in the semiyearly interviews with their parents. It was found that only 11 of the 67 children who were tested in either 1965 and 1966 were enrolled in programs (usually Head Start) of 6 or more weeks' duration. The mean IQ

---

[51] M. P. Honzik, *et al.*, "The Stability of Mental Test Performance Between Two and Eighteen Years," *Journal of Experimental Education*, 1949, pp. 309–324; S. R. Pinneau, *Changes in Intelligence Quotient*, Houghton-Mifflin Co., 1961.

2

of these 11 children in 1966 was 91, as compared with the total comparison-group mean IQ of 89. The number of children with this experience was so small, however, that their slightly higher IQ's did not greatly influence the mean score for the whole comparison group. Moreover, in 1965 the mean score of these 11 children was four points higher than the total group's mean score, so their preschool experience had not resulted in any appreciable increase in their IQ scores.

Another possible explanation of the comparison group's IQ increase is simply the fact of their belonging to a somewhat special group. It will be recalled that these children's parents were told that they were participating in the Howard University Growth Study. This included periodic contacts by sympathetic interviewers, special recognition and gestures of appreciation for their participation, and, perhaps most important, a certain pride and pleasure in having their children evaluated at Howard University. These activities may have stimulated them to take a greater interest in their children's development, and this in turn may have had a beneficial effect upon the children. The low rate of attrition among the comparison group families is in itself suggestive that the parents found something worthwhile in being a part of the study, even at this minimal level of involvement.

This possible explanation of the comparison group's IQ gain is, of course, pure supposition. It is offered primarily as a stimulus for considering the possible side-effects of a conscientious effort to hold on to control-group families. If there were side-effects, at least they were presumably beneficial to the children.

When the major changes in IQ took place

The foregoing figures with respect to changes in mean IQ indicate that the nursery children's rate of gain slowed down during the second year of the program, while the comparison group's increased. Over the 2 years the nursery children gained an average of 14.7 points, but 10.1 of these points were achieved by the end of the first year. In contrast, in the first year the children in the comparison group gained only 0.8 points, on the average, but they moved ahead 3.3 more points during the second year. The result was that the nursery group's gain in the second year was not much greater than the comparison group's gain in that year—4.6 points as compared with 3.3. The difference between these two figures (1.3 points) is not statistically significant and could have resulted by chance.

What does this imply for the Project? Does it mean, as one might off-hand think, that the second year of nursery school was not needed, that the nursery children would probably have made almost as much gain without its services? In the following section we shall show the bearing of socioeconomic status on this question, while in Appendix A an analysis by individual scores shows in more detail where and when the changes took place. Both analyses indicate that 2 years were necessary, except for a small number of children from "better" homes whose IQ's were relatively high at the start of the project.

IQ Gain and Socioeconomic Status

It was noted above (page 54) that in the first school year the children whose IQ's had been below the average for the group were the ones who made the greatest mean gain in IQ scores. It thus appeared that in that year the program was most beneficial to the children who were intellectually the neediest.

Further inspection of the data suggested that socioeconomic status may have been an important factor in this change. (See Table VI and the chart on page 57.)

Table VI

MEAN STANFORD-BINET SCORES OF THE VARIOUS SES GROUPS

	Nursery Group		Comparison Group	
SES:	N	Mean	N	Mean
1964				
Top quartile	9	86.2	17	88.5
Middle	18	83.5	31	84.1
Lowest quartile	11	78.7	19	80.7
1965				
Top quartile	9	103.3	16	88.6
Middle	18	90.7	28	87.8
Lowest quartile	11	87.7	20	79.3
1966				
Top quartile	9	101.9	18	95.4
Middle	16	96.4	26	87.6
Lowest quartile	10	95.1	19	83.8

With regard to initial IQ scores, the F test does not yield statistical significance at the .05 level, but the consistency of the pattern is striking: the mean for each SES group is lower than for the one just above it. The median scores were identical for the top and middle SES groups, with the lowest group substantially below them: 84–84–77. On inspection, the array of individual scores also showed an interesting pattern. The lowest scores in each of the two lower SES groups were below the lowest score in the group above; while the top score in each of the two upper groups was higher than the top score in the next lower SES group. That is, the range of IQ scores moves slightly downward as the SES steps descend.

Top quartile:
74, 74, 76, 77, 84, 84, 93, 101, 113

Middle:
69, 69, 72, 73, 75, 77, 79, 82, 83, 85, 86, 87, 89, 92, 93, 94, 95, 104

Lowest quartile:
59, 66, 69, 75, 77, 77, 78, 84, 90, 94, 97

Although differences do not reach the .05 level, it is arresting to find within so restricted a range, and with such small numbers, so consistent a pattern. The apparent relation is of course in line with what a large body of literature has shown when broader SES classifications are used.

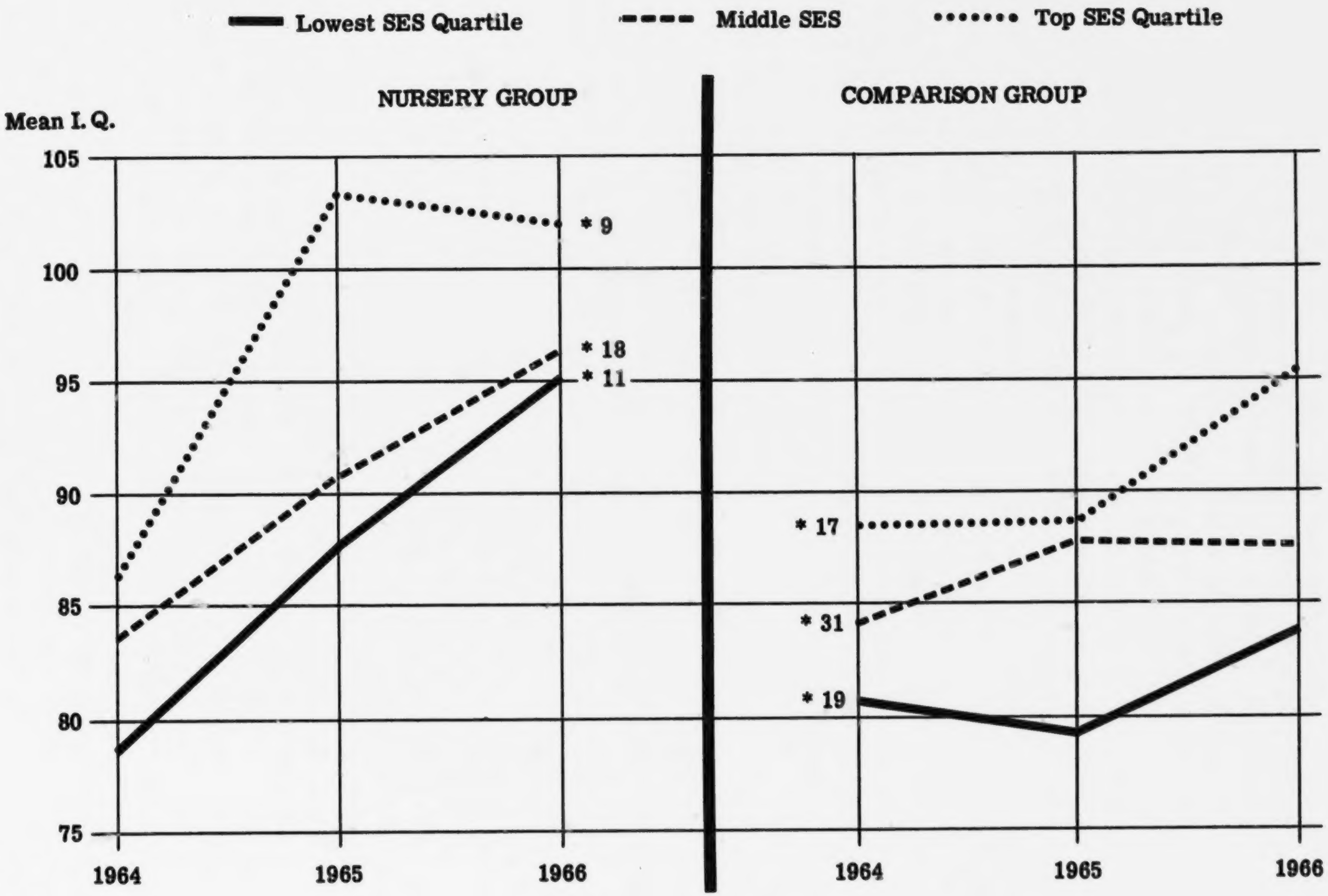
The nine children in the group that was rated highest in socioeconomic level were the ones who made the greatest gain in IQ in the first year—17.1 points on the average. In contrast, the 11 children from families with the lowest SES rating gained an average of only 9.0 points, while those in the middle SES range did slightly less well. And this was in spite of the fact that the children in the highest SES group had the highest average IQ to begin with.

No such marked differences appeared in the comparison group. There the children in the top SES group made practically no change (0.1 point); those in the lowest group declined 1.4 points in IQ; and those in the middle group gained 3.7 points.

Why did the children in the top SES quartile respond so favorably to their first year of preschool experience? Two interrelated hypotheses, in the nature of "best guesses," can be offered: (1) These children came from homes where the parents had established a higher standard of living, were apparently more competent, and had higher educational aspirations for their children. These socioeconomic supports may have contributed significantly to the children's ability to assimilate and make use of their preschool experience. (2) The youngsters themselves may have possessed greater "native" intelligence, and this was reflected in their rapid rate of growth once stimulated by the nursery-school environment.

The children in the highest SES group did not continue to gain during their second year in the nursery school. In fact,

MEAN STANFORD-BINET SCORES FOR 1964, 1965, 1966 BY SES GROUP



* number of children in 1964 testing; number drops slightly in successive years

during that year their mean IQ declined 1.4 points.

Speculation in regard to the "high" children's lack of gain during the second year of nursery school can take several directions. Having made such gains during the first year of nursery school, the second year of preschool may have been a period of consolidation. If this hypothesis is correct, then we would expect that in the next year or two they would again increase their scores. Another possibility is that the curriculum of the nursery school in the second year was not sufficiently stimulating for these children. A third possibility is that these children, who by 1966 had reached an average IQ of 102, were perhaps close to fulfilling their intellectual potential, in which case we would not anticipate marked IQ increases in future years. Maintenance of present gains would in itself be a triumph.

In contrast to the highest SES group, the nursery school children in the middle and lowest SES groups continued to gain during the second year. The net effect was that over the 2-year span, the three SES groups did about equally well. The nursery school children in the top SES group gained an average of 15.7 points in the 2 years; those in the middle group gained 12.9 points; and those in the lowest group gained 16.4 points. In contrast, during that time the comparison-group children whose socioeconomic situation was the most favorable gained more in IQ (6.9 points on the average) than did the children in the other SES groups.

Following the emergence of a pattern of IQ change by SES levels, each of the individual socioeconomic indices was examined to see which, if any, were related to IQ gain. The only index that appeared related was "income per child." A three-way breakdown of "income per child" was made, and the mean Stanford-Binet IQ change was computed for each test round. The resulting patterm is very similar to that presented in the chart on page 57, although the gain made in the first year by the children in the highest "income per child" group is less striking than when the global SES index was used. A similar finding is presented in Appendix A, where IQ gain is related to the Social Security Administration's poverty index. This index, like "income per child," takes into account family size as well as annual income.

From all of this, we conclude that the nursery school program was beneficial to the children regardless of SES level but that the pattern of IQ growth was different in the upper part of the limited SES range represented in this study. The highest SES children made their greatest gains in the first year and then leveled off, while the middle and lowest SES children progressed at a more gradual but steady pace. This finding strongly supports the concept of socioeconomic differences among low-income families, that may be overlooked when working with children who are labeled "culturally deprived." It also suggests that a special "enrichment" program may be needed during the second year of nursery school for the children who made marked gains during the first year.

Other Correlates of IQ Change in the Nursery School Children

1. Participation by parents

In an effort to find out whether the amount of change in IQ was related to the extent of the parents' participation in the activities of the nursery school, the number of family meetings they attended was used as one measure of the parents' involvement. As indicated in Chapter VI, this measure was itself related to socioeconomic level. Dividing the parents into those who attended more than the median number of times and those who attended less frequently, we found that there was little relation between frequency of attendance and the children's gains in IQ. The figures for mean increase in IQ were as follows:

	First Year	Second Year
Attended relatively frequently	10.8 (N=17)	3.0 (N=13)
Attended infrequently	9.4 (N=21)	5.0 (N=22)

Thus, in spite of the fact that parent-participation was related to SES level, and that in the first year of preschool it was the children in the highest SES group who made the greatest IQ gain, parent-participation per se was not related to IQ gain.

Two comments are necessary here. First, the median number of meetings attended by any one family was 4 (out of a possible 49 meetings) in 1964–65, and 3 (out of a possible 29 meetings) in 1965–66. Thus, apart from two or three exceptions, all the families might be considered "low" participators relative to middle-class standards. Second, attendance at meetings was a crude way of measuring parent involvement in the program. There were many instances of mothers expressing regret at not being able to attend. Many were just too busy with outside work or care of sick children to attend even if they wanted to.

In an effort to find some other more adequate measure of parent-participation, the "parent-initiated contacts" were examined in relation to IQ increase. These parent-initiated contacts included a variety of activities, such as visiting the school to observe a child, requesting information relating to adult activities, and calling the school to explain a child's absence or to give some other pertinent information about the child. Parent-initiated contacts provide an index of the extent to which parents voluntarily kept in touch with the school.

The relation between parent-initiated contacts and IQ increase of children proved to be variable, as the following figures show:

	First Year	Second Year
Contacted relatively frequently	12.3 (N=13)	2.3 (N=18)
Contacted infrequently	8.8 (N=25)	6.4 (N=17)

The children of parents who most frequently initiated contact scored the greatest IQ gains in the first year, whereas in the second year it was the children whose parents made fewer contacts who made the greater gains. This pattern parallels that for SES and IQ gains, where in the first year of nursery school it was the children in the highest SES group who made the greatest IQ gains, while in the second year it was the "middle" and "low" children whose gains were greatest.

Apparently, parent-participation (at least as it was measured here) was not an essential ingredient in the progress made by the nursery-group children. This suggests that there is no need to abandon preschool programs for low-income children simply because their parents cannot or will not become actively involved in programs of parent education. It should be pointed out, however, that the school staff kept in touch with all parents, and the adult activities program did seem to meet a real need for several mothers who participated regularly. We should also recognize that the whole question of involving low-income parents in their children's education in meaningful ways needs further investigation.

2. Presence of father figure in home

Because of increasing concern about the presence or absence of a father or father substitute in the homes of low-income families (particularly in the homes of Negro families), an effort was made to relate the presence or absence of a father figure to IQ gain. Thirty of the nursery-group children had a father or father substitute present; eight did not. Half the children from homes with no father present were in the lowest

SES level, while the other half were in the middle SES level. The difference in initial mean IQ between the children from "father present" homes and the children from "father absent" homes was less than two points, in favor of the "father present" group.

As the following figures indicate, there was no relation during the first year between IQ gain and the presence of a father, while in the second year the children from homes without fathers made the greatest gain. This is probably a function of the fact that the children reported as "father absent" were from the lowest or middle SES groups and, like other children in these groups, they tended to make greater gains the second year. As with parent participation, we once again have a variable which is associated with SES level but which is not consistently related to IQ change.

	First Year	Second Year
Father present (N=30)	10.1	3.3
Father absent (N=8)	9.6	8.4

3. Teacher group

As has been said, the children in the nursery school were divided into three groups, each with its own teacher and each occupying a particular section of the room. The children remained in the same group throughout the year. During the second year each child had a teacher different from the one he had the previous year.

Increases in mean IQ by teacher-group were computed and are presented in Table VII. The reader will note that the IQ increases were approximately the same for all teacher-groups during the first year, but that during the second year the children in Teacher B's group gained appreciably more than the children in other groups.

During the first year (when they had had other teachers) these latter children made the lowest mean IQ gain—3.4 points on the average, compared with 14.9 and 11.5, respectively, for the other two groups. It is impossible to determine whether these children's IQ spurt during the second year was due chiefly to a greater readiness to learn or to Teacher B's ability. Since in the first year this teacher's group did not do appreciably better than the other groups, the readiness hypothesis seems more plausible.

Table VII

IQ INCREASE BY TEACHER-GROUP

Teacher	First Year	Second Year
A	10.6	2.3
B	10.8	7.9
C	8.7	3.3

4. Attendance

The relation between the proportion of time a child was present at school and his gain in IQ is shown in Table VIII. The

Table VIII

MEAN INCREASE IN IQ AND AMOUNT OF ATTENDANCE

Percent of Total Days in Attendance	First Year		Second Year		Total 2 Years	
	No. of children	Mean gain in IQ	No. of children	Mean gain in IQ	No. of children	Mean gain in IQ
Less than 70	11	6.1	9	8.1	9	13.8
70–79	9	12.8	12	5.1	7	14.1
80–89	12	12.1	5	4.4	11	20.2
90 or more	6	9.0	7	0.1	6	8.7

figures indicate that in the first year the greatest gains were made by the children who attended 70–90 percent of the time, while those who attended less frequently and those who attended more frequently made somewhat smaller gains. In the second year, in contrast there was a consistent decline in gains in IQ as attendance increased. This peculiar finding may be due, in part, to the fact that attendance was associated with SES level and the mean IQ scores of the "top" SES children decreased the second year.

When attendance over the entire 2-year period of nursery school is compared with total IQ gain, the pattern is one of progressive increase in IQ gain from low to high attenders, except for those six children who were present at least 90 percent of the time. The gain of these high-attenders was less than that of the children who attended least consistently. In this connection it should be noted that the high-attending children had an initial mean IQ which was slightly higher (2–3 points) than the rest of the children.

Comparison with Analogous Programs

In order to place the Howard Project in perspective, it is interesting to compare the test results cited above with those obtained in similar studies. The particular studies which will be mentioned here are those reported by Alpern,[52] Beller,[53] Gray and Klaus,[54] Goldstein,[55] Starkweather,[56] and Weikart *et al.*[57] These programs differ from the Howard Project and from each other in curriculum, method of selecting children, age at which the children were enrolled, extent of parent-participation, and tests employed to evaluate the program. Nevertheless, they are similar to the Howard Project in two important ways, the programs have lasted for at least 1 or 2 school years and performance of experimental children has been compared with that of control groups.

In all the studies cited above, the Stanford-Binet was used either as a basis for initially comparing nursery-group and comparison-group children or as a measure of change in intellectual performance as a function of preschool experience. In terms of initial test scores (i.e., prior to nursery school) the children in the Howard Project had lower IQ's than the children in any of the other studies except the one conducted in Ypsilanti, where the pre-test mean IQ's of the three experimental groups were 78, 79, and 81, respectively. Initial IQ scores reported in other studies were in the high 80's or low 90's.

All studies, except Alpern's,[58] reported some IQ gains after 1 year of nursery school. The gains ranged from 3 to 20 IQ points, with 9 points being the median gain. The greatest average gain after 1 year was reported by the Ypsilanti project, whose nursery-group children, like those in the Howard Project, had initially lower IQ scores than those reported in other studies.

---

[52] Gerald D. Alpern, *The Failure of a Nursery School Enrichment Program for Culturally Deprived Children* (mimeogragraphed). Preliminary Report prepared for Fall 1965 Regional Meeting of American Association of Psychiatric Clinics for Children, Cincinnati, Ohio.

[53] E. Kuno Beller, *Annual Report of Research in the Philadelphia Experimental Nursery School Project* (mimeographed), Philadelphia Council for Community Advancement in Educationally Deprived Children, Temple University, 1965.

[54] Susan W. Gray and R. A. Klaus, "An Experimental Preschool Program for Culturally Deprived Children," *Child Development*, December, 1965.

[55] L. S. Goldstein, *Evaluation of an Enrichment Program for Socially Disadvantaged Children* (mimeographed), Institute for Developmental Studies, New York Medical College, New York City, June, 1965.

[56] E. K. Starkweather, *Preschool Research and Evaluation Project* (mimeographed), Oklahoma State University, 1966.

[57] David P. Weikart, Constance K. Kamii, and Norma L. Radin, *Perry Preschool Project Progress Report* (mimeographed). Public Schools, Ypsilanti, Mich., June, 1964; David P. Weikart, *Preliminary Results from a Longitudinal Study of Disadvantaged Preschool Children,* Ypsilanti Public Schools, 1967 (mimeographed).

[58] Alpern, *op. cit.* The relatively short duration of this program (6 hours a week for 7 months) may account for the lack of positive findings.

Where preschool projects were continued beyond 1 year, the IQ gains reported at the end of the second year were uniformly less than those occurring in the first year, as was also found in the Howard Project. In the Ypsilanti study, where initial IQ gains were quite spectacular (12, 13, and 20 point increases for the three experimental groups), the mean IQ scores decreased during the second year. The authors of this study made an item analysis, which indicated that the decline in IQ scores was due to a deceleration in rate of growth and not to a loss of previously acquired abilities.

Turning to the results from tests other than the Stanford-Binet, we have a limited basis for making comparisons between the Howard Project and similar studies, since a variety of tests of verbal ability, reading readiness, and measures of social-motivational factors were used in place of the ITPA, PPVT, and Merrill-Palmer. In the three studies in which the PPVT was used on a pre-test, post-test basis, the gains made by the nursery-group children were slightly greater than those made by the children in the Howard Project. In general, the results from the PPVT are less consistent than those obtained from the Stanford-Binet.

Two studies (those of Weikart and of Gray and Klaus) used the ITPA on a pre-test, post-test basis. In both of these studies, as in the Howard Project, the nursery-group children made significant increases in ITPA scores but were still functioning below normal in language ability at the end of 2 years of nursery school.

In regard to the performance of the comparison groups, two studies (Weikart and Alpern) have findings similar to those obtained in the Howard Project; i.e., an increase in the comparison group's scores over a 1 or 2 year period, whereas two other studies (Goldstein and Gray and Klaus) noted decreases in the comparison group's scores. Where the comparison-group scores have increased, no documented explanation has been offered. The Ypsilanti group made an effort to find a growth pattern among the comparison-group children at various ages to account for the IQ increase but no consistent pattern was found.

In conclusion, a comparison of the Howard Project's test scores with the results obtained by other groups indicates the following:

1. The Howard Project nursery children made above-average increases in IQ scores. This relative superiority in performance is associated with the fact that these children, like those in the Ypsilanti group, had initially lower IQ scores than the children in other groups.

2. The tapering-off of gains during the second year of nursery school, which was characteristic of the Howard Project children, is a common phenomenon.

3. It also seems characteristic for children from low-income homes to be below average in language ability (in terms of ITPA test norms) even after 2 years of preschool experience.

4. The interesting pattern of IQ gain by SES level has not been analyzed in other studies, where all the children are grouped together as "culturally deprived" or "from low-income families."

VIII. SUMMARY

Purpose

The purpose of the Project was to determine whether a 2-year experience in a traditional middle-class nursery school, plus parent education activities, could help offset the difficulties which low-income, inner-city children experience when they enter elementary school.

Nursery- and comparison-group children

Out of a pool of 200 families, recruited by a door-to-door canvass in a densely populated, low-income area of Washington, D.C., 38 children (15 boys and 23 girls) between the ages of 3 and 3½ were assigned to the experimental (or nursery school) group, and 69 of nearly the same age (32 boys and 37 girls) were assigned to the comparison group. As a result of the population composition of the District of Columbia, rather than by deliberate intent, all the children were Negro.

The final number of children in both the nursery and comparison groups was higher than originally anticipated due to the fact that the attrition rate was very low in both groups. In the course of 2 years only two children were withdrawn from the nursery school program and only four dropped out of the comparison group.

The families from which both the nursery and comparison groups were drawn were similar in salient socioeconomic variables, such as family yearly income (median annual income was approximately $3,500 for both groups), income per child, extent of welfare assistance, number of children in home, and mother's education.

In general, the families in the Project belonged to the lower end of the socioeconomic status (SES) continuum. However, distinct socioeconomic differences among families were noticeable. Some families seemed well-organized, responsible, and had a slightly better standard of living. Other families seemed particularly disorganized, living in dire poverty, and resembling what are often called "multiproblem" families. The majority of families seemed to fall somewhere between these two extremes. In order to determine whether these family differences affected the extent to which the children benefited from nursery school, the families in both the nursery and comparison groups were divided into three socioeconomic levels—all within the low SES stratum—on the basis of both impressionistic judgments and quantitative socioeconomic indices. One-fourth of the families were rated as "high" SES; another fourth as "low" SES; and the remaining one-half in the "middle" SES.

Preschool program

The nursery-group children attended Howard University Nursery School for 2 school years (approximately 10 months each year) from September, 1964 to June, 1966. The service was an all-day (7-hour) program, 5 days a week. Transportation was provided for all the children. Daily attendance averaged approximately 75 percent.

The children were divided into three groups, each with its own teacher. Each child remained with his own group and teacher throughout the school year. Each group had approximately 12 children and one teacher, who was assisted intermittently by the Head Teacher, a "floating" teacher, and a series of student aides.

The curriculum was not specifically geared to the problems of low-income children but was an adaptation of the program usually provided by the Howard University Nursery School for middle-class children. The program was traditional in nature, with emphasis on fostering curiosity and enthusiasm for learning through the media of play, storytelling, dramatics, music, games, nature walks, and field trips. A considerable portion of the day was spent in outdoor play, and there was a two-hour rest period. Breakfast, lunch, and a mid-morning snack were provided.

Adult activities program

Accompanying the program for children was an active adult program. During the first year, the program for parents was centered on weekly activity-oriented meetings, where parents (chiefly mothers, although some fathers attended) met at school and worked on school-support projects, such as sewing articles of clothing for the children, unpacking and sorting books, making games for the children, etc. As they worked on the projects, the parents chatted informally and joined in discussions, usually led by the adult activities worker, about the children and the school program. Occasionally there was a special demonstration, such as making clothing for children from discarded adults' clothing, or a specific talk or film on child development. Attendance was small, averaging four parents per session. These weekly group meetings were supplemented by field trips, and "special occasion" parties at school (e.g., Christmas, Easter, and Family Night) which were much more heavily attended (15–20 parents) and usually included a number of fathers and siblings.

During the second year the emphasis shifted from weekly group meetings to more one-to-one contacts with the staff. The parents were encouraged to visit the school, to help in the classroom, and to watch their children from the observation booth, where a teacher was usually available to talk with them about the children's activities. Visits to the homes were also made by the adult activities worker and occasionally by other members of the staff.

All but one of the families visited school at least once during the 2 years, and approximately one-third of the families (all of whom were in the "high" or "middle" SES category) participated fairly regularly in the adult-activities program, either by attending group meetings or by coming to see their children in school. Even the parents who rarely participated in the adult-activities program seemed very sympathetic to the school and pleased to have their children enrolled in it.

Test results

To evaluate the impact of the nursery school program, both nursery and comparison group children were tested before the former group's entrance into preschool, at the end of the first year of preschool, and at the end of the second year.

The Stanford-Binet was administered on all three test rounds. The Peabody Picture Vocabulary Test, portions of the Merrill-Palmer, and two subtests from the Illinois Test of Psycholinguistics were given in two of the three test rounds, as a supplement to the Stanford-Binet.

The average Stanford-Binet IQ of the nursery-group children prior to their preschool experiences was 82.7, with a range of 53–113; the comparison group's average was 84.6, with a range of 65–119. In both the nursery and comparison groups, mean IQ scores showed a consistent, though not statistically significant relation to family

SES level, with the children from the highest level, within this low-income group, receiving the highest scores, and so on down the line.

After 2 years of preschool, the nursery group's average IQ was 97.4, a gain of 14.7 points. The nursery-group boys, whose initial average IQ was only 77.3 (which may have been the result of a sampling bias) gained 19.6 points, while the girls, whose initial IQ averaged 86.3, gained 11.4 points. The comparison group in the same 2-year period made an average gain of 4.1 points.

All the nursery-group children except two made some gain in IQ over the 2-year period. Taken as a whole, this group made its greatest gain during the first year. An average 10-point gain was made the first year as compared with a 5-point gain the second year.

When IQ gain was related to family SES level, it was found that the nursery group's gain in the first year was accounted for primarily by the children (both boys and girls) from the highest SES quartile. Their average gain was 17 points the first year, but during the second year they dropped a point, ending up with an average IQ of 102. In contrast, nursery-group children from the middle and the lowest SES levels tended to make more steady, gradual gains during the 2-year period, ending with an average IQ of 96 and 95, respectively. The highest and the lowest SES quartiles made the same average IQ gain (16 points) over the 2-year period, while the middle SES group made a 13-point gain.

A very similar but less striking pattern of IQ increase was found when IQ gain was related to family income per child. None of the other individual SES variables appeared related to the extent or pattern of IQ increase, nor was the latter clearly associated with the extent of parent participation in the adult activities program, presence of the father in the home, or the particular teacher. Except for the very frequent attenders, there was a positive relationship between children's attendance and extent of IQ gain. The children who had the best attendance records had IQ scores that were slightly higher than average when the Project started, but they made less than average gain over the 2-year period.

On the other tests, too, the nursery-group children made significant gains. The two subtests from the Illinois Test of Psycholinguistics (the Auditory-Association and the Auditory-Automatic) suggested, however, that by the end of the 2 years these children were still over a year below their age norm in associative language ability and grammar, and in understanding the meaning of words. This corroborates the impression of the teaching and research staff that the children still had a long way to go before catching up with their middle-class peers in expressive language skills.

While the results of the Project are encouraging, the full value of the nursery-school experience in improving intellectual functioning cannot be determined until we see how these children perform in the next few years of public school, and how their performance compares with that of the control group.

APPENDIX A

A FURTHER ANALYSIS OF IQ CHANGES

Helen L. Witmer

THE FINDINGS OF THIS STUDY suggest that a traditional nursery school program, carried on for 2 years on a full-day basis, can significantly raise the average IQ of children from low-income families and thus presumably improve their chance of performing adequately in regular school. The study also showed (1) that the amount of improvement in IQ was likely to be greatest in children who originally scored below the group mean, and (2) that the speed of improvement in IQ was related to the socioeconomic level of the family.

In reviewing the report for publication, it seemed to the Editor that the data on which these interesting findings were based should be further analyzed with a view to greater specificity. There seemed to be particular need for this because the categories that were used in arriving at these findings were relative to the composition of the group of children and families in the Project. To be more specific, the cutoff point for making the comparisons in regard to IQ change was the mean IQ for the nursery group at the start of the Project. That is, the cutoff point referred to this particular group of children and would doubtless be somewhat different for other preschool groups. Similarly, the socioeconomic cutting points that were used were also peculiar to the families whose children attended this nursery school. While good reasons can be adduced for using these procedures, it seemed worthwhile to reexamine the data in an attempt to make the findings more precise and perhaps more widely applicable.

Change at Specified IQ Levels

Where the greatest amount of change took place

The first step in the analysis was to examine the original Stanford-Binet IQ scores and the changes in those scores by the end of the second year. At question were (1) how fine a breakdown in scores should be made and (2) what breakdown points afforded the greatest contrast in amount of change.

The figures that were used in this analysis are given in Table I–A, which shows the mean IQ gains of the nursery-school and comparison-group children divided in various ways.

Considering the nursery-school children first, we see that, regardless of where the breaks in scores are made, as original IQ scores go up there is a steady decline in the average amount of gain. For instance, the five children who scored under 70 in 1964 increased 23.6 points on the average by 1966, while the 10 who originally scored 90 or above gained only about a third as much—7.9 points.

The diagonals on the table tell the

Table I–A

MEAN CHANGE IN IQ BETWEEN 1964 AND 1966
(BY VARIOUS IQ CATEGORIES)

Nursery-School Group

IQ at Start	Number		Mean Change in IQ of Various Subgroups				
	Not Tested in '66	Tested	5-point intervals	10-point intervals	10-point intervals	Varying intervals	Below & Above 85
Under 70		5	23.6	23.6	23.1	20.9	18.6
70–74	1	3	23.0	19.7			
75–79		9	18.7		16.1		
80–84		5	11.4	11.5		11.5	7.2
85–89	1	3	11.7		10.1		
90–94	1	5	9.2	7.9		7.9	
95–104		4	6.5		4.6		
105–109							
110 & up		1	−3.0				
Total	3	35	13.9	13.9	13.9	13.9	13.9

Comparison Group

IQ at Start	Not Tested in '66	Tested	5-point intervals	10-point intervals	10-point intervals	Varying intervals	Below & Above 85
Under 70		4	3.7	3.7	7.6	7.1	5.5
70–74	1	6	10.3	8.0			
75–79		11	6.6		4.5		
80–84	3	11	2.4	4.0		3.9	
85–89	1	10	5.6		4.5		2.3
90–94		10	3.4	0.7		−2.4	
95–104	1	7	−4.0		−2.4		
105–109							
110 & up		2	3.0				
Total	8	61	4.3	4.3	4.3	4.3	4.3

same story. The farther up the IQ scale the break in scores is made, the smaller the average IQ gain. When the lowest cutoff point is put at 69, the average gain for the lowest-scoring group is 23.6 points; when it is put at 74 the gain is 23.1; at 79 it is 20.9 points gain; at 84, 18.6 points. The same trend, though less marked, is shown at the other end of the scale.

The question then is: which cutoff points tell the story best? There is, of course, no right answer. In view of the small number of cases, however, a break at the 5-point levels of IQ seemed too fine, while using a dichotomy made the picture less dramatic than it actually was, and perhaps of less practical significance. The best cutoff points seemed to be the 10-point levels. Was it better, then, to make the break at 70, 80, and 90 IQ or at 75, 85, and 95? In the following analysis we chose the latter cutoff points, chiefly because it showed better the small amount of gain made by the children who had high IQ scores at the start. The mean gains for the 2 years in which the Project was in operation were as follows as shown in Table I–A. The number of children in each subgroup is given in parentheses.

	Nursery Group	*Comparison Group*
Under 75	23.1 (8)	7.6 (10)
75–84	16.1 (14)	4.5 (22)
85–94	10.1 (8)	4.5 (20)
95 and up	4.6 (5)	—2.4 (9)

Two main conclusions can be drawn from this comparison. First, at each IQ level the children who attended the nursery school outdistanced those in the comparison group in average gain in IQ, the nursery-school children's average gain being two to three times as great as that of the other children.

Second, in both groups the average amount of gain became smaller as the original IQ level increased. Nursery-school children whose IQ score was 95 or above in 1964 had gained only a fifth as much by 1966 as had those whose original scores were under 75. There was much the same difference in the comparison group.

Changes at various IQ levels

Table II–A takes the analysis a bit further by showing the distribution of individual IQ changes within each IQ range and for each group of children. Such a comparison seemed worth making because some of the averages concealed a wide variation from case to case, in both the nursery-school and the comparison groups.

Overall, the changes in the nursery-school children's IQ scores ranged from a loss of 3 points to a gain of 45 points between the first and the last round of testing. The 45 points were gained by a child who attended the nursery school, his IQ rising from 77 to 122. (See Terman, Appendix B.) While this was by far the greatest gain, three other nursery-school children gained 31 or 32 points, starting from IQ's in the 60's or 70's. In the comparison group, only one child gained more than 20 points, this child having started with an IQ score of 80 and ending with 101.

As to losses, only one child who attended nursery school had a lower score at the end than at the beginning of the program, and hers was a change from 113 to 110.

In the comparison group, however, 11 of the 61 children who were tested in both 1964 and 1966 lost over 5 points in IQ, six of them losing over 10 points. Losses of more than 5 points were relatively more frequent among comparison-group children whose IQ's were in the normal range at the start.

Table II–A again shows that there was a clear relation between the size of the nursery children's gains in IQ and the scores

Table II–A

ORIGINAL IQ AND AMOUNT OF CHANGE IN IQ: 1964–1966

Nursery-School Group

Amount of Change by 1966	IQ at Start of Program—1964					
	Under 75	75–84	85–94	95 & up	Not tested in '64	Total
over —10						
—6 to —10						
±5		2	1	3		6
6–10	1	3	5	1		10
11–20	2	5	2	1		10
21–30	2	3				5
31 & up	3	1				4
Not tested in '66	1		2			3
Total	9	14	10	5		38

Comparison Group

Amount of Change by 1966	IQ at Start of Program—1964					
	Under 75	75–84	85–94	95 & up	Not tested in '64	Total
over —10		3	1	2		6
—6 to —10	1	1	1	2		5
±5	2	6	9	4		21
6–10	2	6	3			11
11–20	5	5	6	1		17
21–30		1				1
31 & up						
Not tested in '66	1	3	1	1	2	8
Total	11	25	21	10	2	69

with which they started. Only two of the five nursery-school children with IQ's above 94 gained more than 5 points, one gaining 6 and the other 13. In contrast, five of the eight children under 75 at the start gained over 20 points.

The table shows gains of more than 10 points becoming increasingly uncommon as the beginning IQ level rises. In other words, as the averages listed on page 68 indicated, the children who seemed most handicapped at the outset were the ones most likely to make large gains.

The tendency of low IQ's to rise is shown in the comparison group as well as in the nursery group but not to nearly the same extent. (This was also demonstrated by the mean scores cited above.) Only one of the 10 comparison-group children whose IQ's were under 75 at the outset lost over 5 points, and five of them gained more than 10 points. At the other end of the scale, the ratio of losses of over 5 points to gains of over 10 points was 4 to 1, and the IQ's of half of the children did not change to any significant extent. This may evidence the familiar phenomenon of regression toward the mean. If so, however, it is a phenomenon that was obscured in the nursery group by the influence of the nursery school, which apparently exerted an upward push on the IQ's of practically all the children.

Since the size of the change in IQ was related to the original IQ level and since a somewhat greater proportion of nursery-school than of comparison-group children had low IQ's at the start, Table II–A should be examined with IQ being held constant. In this way the question of whether the nursery school was especially beneficial to children of certain IQ levels can be answered in detail.

At each IQ level and in both nursery-school and comparison groups there was a considerable variation in the amount of IQ change made by individual children. The extent of the variation was greater, however, in the comparison group. This was probably to be expected, since these children did not have the relatively uniform experience that the nursery school provided. Even so, the absence of losses of more than 5 points in the nursery group and the absence of gains of more than 20 points in the comparison group are striking.

When the extreme IQ levels are contrasted, it is seen that the nursery-school experience apparently helped many of the most handicapped children to make large gains. (Five of the eight children with an IQ under 75 gained over 20 points, as contrasted with none of the 10 such children in the comparison group.) Alternatively, the nursery school helped the children who scored highest at the start to avoid marked losses. None of the five nursery-school children with IQ's of 95 or more lost more than 3 points, while nearly half of the nine comparison-group children lost 7 to 17 points.

In between the extremes of under 75 and over 94, the story was the same. The nursery school was more successful in helping the children with the lower IQ's to make large gains. Four out of 14 nursery-school children with IQ's between 75 and 84 gained over 20 points, as contrasted with 1 out of 24 in the comparison group. Among the children with IQ's between 85 and 94, none made so large a gain, either in the nursery-school group or in the comparison group. Nearly half of such children in the comparison group declined over 5 points in IQ, while attendance at nursery school presumably kept this from happening to the other group of children.

When the Change Took Place

The Howard University Preschool Project provided 2 years of schooling to the children in the nursery group. This is a considerably longer period of schooling than that provided by many preschool projects. With this length of schooling, it seemed important to determine when the major changes in intellectual functioning occurred, how large the changes were, and at what IQ levels the change was greatest.

The writers of the report have shown that the nursery-school children had gained an average of 10.1 points by the end of the first year in school but that during the second year their average gain was much smaller, being only 4.6 points. Moreover, while in the first year the nursery-school children made a much greater gain than the children in the comparison group, in the second year the average amount of gain in the two groups did not differ greatly. Does this mean that the nursery school's influence declined in the second year? Does it mean, indeed, that the gain made by the nursery-school children in the second year was perhaps not attributable to the influence of the school, since the comparison-group gained almost as much without attending?

The writers of the report conclude that the explanation is to be found not in a decline in the influence of the nursery school but in the delayed impact of the school's program on the children from the lowest socioeconomic level. They found that the better-situated children made their major IQ gain in the first year, while in the second year these children made relatively small gains. This lowered the group average for the second year and obscured the school's effectiveness with the other children.

This is a finding that will be pursued further. First, however, we want to examine the second year's changes in terms of IQ levels, for it seems possible that an explanation of the apparent slowing-down of gains can be found in that factor also.

One way of looking at the question of when the gains occurred and what relation this bore to IQ level is to ignore the exact size of the gain and merely to note in which years gains of significance occurred. ("Significance" is here defined as a gain of over 5 IQ points.) Table III–A gives the figures, the IQ scores being those at the start of the project.

Table III–A

WHEN GAIN OF OVER 5 IQ POINTS TOOK PLACE

Nursery School

Year in Which Gain Was Made	IQ at Start of Program				
	Under 75	75–84	85–94	95 and up	Total
First only	4	6	4	2	16
Second only	2	1	2	2	7
Both	3	4	-------	-------	7
Neither	-------	2	2	1	5
Missed one or more tests	1	-------	2	-------	3
Total	10	13	10	5	38

It can be seen in this table that just about half of the children in each IQ category made significant gains only in the first year. A few children (a fifth of the total) gained only in the second year. All of the children who made significant gains in both years had IQ's under 85 at the start. Five of the 35 children who were tested all three times did not gain over 5 points in either year, though several of them had a cumulative gain of more than that amount over the 2 years.

These figures are in line with the earlier finding in regard to a slowdown in gains in the second year. A point that throws further light on patterns of gain is that none of the children whose IQ's were 85 or above at the start gained significantly in both years, though nearly all of them gained in either the first or the second year. This suggests that once children gained enough to reach a normal IQ level they were unlikely to make gains of more than 5 points. The figures in this table could not fully confirm that conclusion but they set us on the path of reconsidering IQ levels in relation to amount of gain made in the second year.

In inquiring about the size of the gains made in the second year by children of particular IQ levels, there are two ways of stating the question. We can ask how much the children gained in the second year as compared with the first, in terms of the IQ scores they had at the start of the program. Alternatively, we can ask how much the children who had attained certain IQ's by the end of the first year gained by the end of the second year. In both cases we would want to find out how much difference there was between the gains of the nursery-school group and those of the comparison group.

So long as the examination of IQ change is confined to the groups as wholes, it makes no difference which of these two questions was asked. The answer (though not the explanation for it) would be the same in either case. But when we want to determine when the changes at particular IQ levels occurred, it makes a great deal of difference which question is asked, especially when the comparison and nursery-school groups are to be contrasted.

The figures that are secured when the question is put in the first way are shown in Table IV–A. Looking at the figures for the nursery school, we see that in each year (just as by the end of the 2 years combined) there was a progressive decline in IQ gain as the original IQ level rose. In the first year the average gain ranged from 15.5 points for the children under 75 to 4.8 points for those with IQ's of 95 or more. In the second year the range was from 7.6 to –0.2.

In addition, in each IQ category, the amount of gain was smaller in the second year than in the first. Indeed, in the second year, the average gain of the children who started with IQ's of 95 or above was zero.

In the comparison group the story was somewhat different. In the first year, the average gain was very small in any of the IQ groups, ranging from 2.5 to –3.8. In the second year the gains in three of the four groups were slightly larger. Even so, only the children whose IQ's were under 75 at the start made an average gain of over 5 points.

Table IV–A

MEAN GAIN IN IQ IN EACH YEAR

Children grouped according to IQ
at beginning of program

IQ at Start of Program	Mean Gain in IQ					
	Nursery Group			Comparison Group		
	First Year	Second Year	Total Gain	First Year	Second Year	Total Gain
Under 75	15.5	7.6	23.1	2.2	5.4	7.6
75–84	12.3	3.8	16.1	1.7	2.8	4.5
85–94	6.6	3.5	10.1	2.5	2.0	4.5
95 and up	4.8	–0.2	4.6	–3.8	1.4	–2.4
Total mean gain	10.1	4.6	14.7	0.8	3.3	4.1

This difference between the two groups in regard to when their greatest gains were made (the nursery-school group in the first year and the comparison group in the second) meant that there was little difference between the two groups in the average gains they made in the second year.

If the analysis stopped there, the breakdown by IQ categories would not have advanced our understanding of why there was so little difference between the nursery-school and the comparison group in the second year. The picture is quite different, however, when the changes in the second year are described in terms of the children's IQ scores at the end of the first year. This difference arises from two facts. First, during the first year the amount that particular children gained varied considerably, even though they were in the same IQ group at the start. Second, in that year most of the children who attended nursery school gained much more than those who were in the comparison group. In consequence, by the end of the first year the distribution of IQ's in the nursery-school group was so different from that of the comparison group that the latter group no longer served as an adequate control so far as IQ was concerned.

In Table V–A, therefore, the two groups of children are broken into subcategories on the basis of their IQ scores at the end of the first year, and the average amounts of gains made in the second year are calculated from that time. The table shows that the seven children in the nursery-school group who were still under 85 at the end of the first year gained an average of 12.6 points during the second year, while the 27 in the comparison group gained only 4.9 points. At the higher IQ levels, however, the average gains in the second year were much smaller (none of them being as much as 5 points), and there was very little difference between the nursery-school and the comparison groups.

This indicates that one reason why the nursery-school group as a whole did not show a large gain in the second year was that by the end of the first year most of these children had already reached the point at which IQ gain is apt to slowdown. In other words, one reason for the nursery school's apparent decline in achievement in the second year was that it had succeeded so well in the first year in bringing most of the children's scores up to or near to normal. By the end of the first year only seven nursery-school children were scoring under 85, as compared with 18 at the outset.

Table V–A

MEAN GAIN IN IQ DURING SECOND YEAR OF PROGRAM

Children grouped according to IQ at end of first year

IQ at End of First Year	Mean Gain during Second Year			
	Nursery Group		Comparison Group	
	Number	Gain	Number	Gain
Under 75	2	13.5 } 12.6	7	8.0 } 4.9
75–84	5	12.2	20	3.8
85–94	13	2.8	15	3.4
95 and up	15	1.3	15	—3.0
Not tested both years	3	----------	12	--------
Total	38	4.6	69	3.3

The Influence of Socioeconomic Status

With the relation between IQ level and gain in IQ established, we are now in a position to look more closely at the influence that home conditions (as indicated by the socioeconomic status categories) exerted both on the amount of gain that was made and on when the gain was made. In addition we shall consider whether a relation between SES and these variables persisted when SES was defined in absolute rather than relative terms.

First, however, the relation between SES and the original IQ scores must be determined, for if these two variables were closely associated, any apparent effect of SES on IQ change might really be due to IQ differences. Table VI–A shows the distribution of the nursery-school children's IQ scores at the start of the project, as well as in subsequent years.

This table shows that at the outset there was only a slight relation between SES and IQ. Two-thirds of the children in the highest SES group had IQ's under 85 as compared with about three-fourths of those in the lowest SES group and half of those in the middle. In view of the small number of cases, these differences are of little importance. We conclude, therefore, that for this sample whatever the differences in the manner and extent of IQ changes in the various SES groups, they are not due to any large extent to IQ differences among the groups at the start.

This point being established, we have next to ask to what extent the three SES groups differed in the gains they made and in the speed with which they changed. So far as this is indicated by the distribution of IQ's at the end of each year, Table VI–A tells the story.

By the end of the first year, the distribution of IQ's in the three SES groups had changed greatly. All of the children whose homes were rated in the top SES quartile now had IQ's of 85 or over. In fact, none of them was under 90, three were between 95 and 104, and three were over 110. At the other end of the economic scale, only six of the 11 children in the lowest SES group were 85 or over, and two still had IQ scores in the 60's. In the middle group, 14 of the 18 children scored 85 or above, and 10 of these were over 90.

By the end of the second year the IQ distributions had come nearer together. Even so, three children in the lowest SES group still scored under 85. Two of these were children who had changed little over the 2 years: one had stayed at 77 IQ; the other had moved from 66 to 74. The third child's IQ, however, had gone up from 59 to 81. Aside from these three children and two others in the middle SES category, all of the children

Table VI–A

SOCIOECONOMIC STATUS AND IQ DISTRIBUTION AT BEGINNING, MIDDLE, AND END OF THE PROGRAM

Socioeconomic Status	IQ Scores						
	At Start of Program						
	under 65	65–74	75–84	85–94	95–104	105 and up	Total
Top quartile	—	2	4	1	1	1	9
Middle	—	4	5	7	2	—	18
Lowest quartile	1	2	5	2	1	—	11
Total	1	8	14	10	4	1	38
	At End of First Year						
Top quartile	—	—	—	2	3	4	9
Middle	—	—	4	10	4	—	18
Lowest quartile	1	1	3	2	3	1	11
Total	1	1	7	14	10	5	38
	At End of Second Year						
Top quartile	—	—	—	3	2	4	9
Middle	—	—	1	6	6	3	16
Lowest quartile	—	1	2	2	3	2	10
Total	—	1	3	11	11	9	35

in the nursery school were testing at 90 or above (that is, as normal or better) by the end of the second year.

As judged, then, by the reduction in the number of children with IQ's under 85, Table VI–A appears to indicate that the children in the highest SES group made their chief upward moves in the first year, those in the middle SES group moved upward in both years, while those at the lowest SES level were a bit more likely to gain in the second year. The difference between the groups is clearest with respect to the children in the highest SES group, the other two groups not differing from each other so sharply.

The diversity in the time at which gains were made is shown more clearly when the movement in the three SES groups is analyzed in the manner shown in Table III–A.

In the highest SES group, all of the gains of more than 5 points were made in the first year. All but one of the nine children gained at that time. The ninth was the child previously mentioned who started with an IQ of 113 and went down 3 points in subsequent years.

In the other two SES groups the picture as to time of gain was less simple. The following are the figures for gains of over 5 points a year:

	Middle SES	*Lowest SES*
Gained in first year only	6	2
Gained in second year only	4	3
Gained in both years	3	4
Gained in neither year	3	1
Total	16	10

These two groups were not very different in their pattern of gains, though gains in only the first year were largely confined to the middle SES group. In that group, six out of the eight children who gained significantly only in the first year started with IQ's under 85.

Apparently, then, the relatively superior home conditions represented by the highest SES ratings enabled the children in that group to make their full IQ gain in the first year. Regardless of initial IQ, these children reached normal IQ or better during that period of time. Most of the children in the other two groups either continued to gain in the second year or did not start until that time.

The need for a second year of nursery school was apparently greatest in the lowest SES group, as is found when individual scores are examined. The following figures show the size and the timing of the gains made by the children in the lowest and the middle SES groups who made gains of 15 points or more over the 2 years.

Lowest SES	*Gain in first year*	*Gain in second year*
Child A	25	20
B	25	7
C	14	9
D	4	18
E	5	12
F	6	9
Middle SES		
Child G	16	16
H	7	19
I	10	12
J	20	—
K	15	1
L	13	2

The foregoing analysis appears to indicate that a child's initial IQ and his socioeconomic status independently influence how much he will benefit, in terms of intellectual functioning, from a nursery-school program of the type provided by Howard University.

The first of these factors influences how large his IQ gain will be; the second, how soon within a 2-year span the major part of the gain will be made.

The findings with regard to the IQ factor have been expressed in absolute terms; that is, in terms that are independent of this particular study. With respect to socioeconomic status, however, the analysis so far has been confined to groupings that refer to this particular study only. Nearly all of the families in the study were described as deprived, but degrees of deprivation and of ability to cope with deprivation were recognized and were used as the basis for classification. The families were grouped (by forced choice on the part of the research staff) into an upper and a lower quartile and the half that lay between. This grouping, as we have seen, produced interesting findings, but the findings cannot be easily applied to other preschool programs since the range of conditions represented in the quartiles would probably differ from one program to another.

As a final step in the analysis, therefore, we classified the families and their children in accordance with the income-level categories that have been devised by the U.S. Social Security Administration and used in connection with the Federal Government's program. As noted above (page 22), these levels take into account the number of persons in the family, the sex of the family head, and farm vs. nonfarm residence.

In doing this, our chief interest was to determine whether this classification scheme would provide a means that could be used by other investigators and practitioners to distinguish between the children who would be likely to need 2 years of nursery school to make their maximum gain and those who would be likely to make most or all of their gain in the first year. These figures are given in Table VII–A, where, as in Table III–A, gains are regarded as significant if they were over 5 IQ points.

This table shows much the same relationship between income level and time of gain as that indicated by the SES groupings that were used in the Howard University study, except that the picture presented by the children in the highest income level is not quite so striking. Again, the best-situated children were apt to make their chief gain in the first year. This was the pattern of 63 percent of the children at this economic level, of 43 percent at the next level, and of 37 percent of the children who were living in poverty. A third of the latter children did not make a significant gain until the second year, as contrasted with about 13 percent of the children in the other two groups. The proportion of children who gained in both years increased as income became less than adequate.

Table VII–A

TIME OF SIGNIFICANT GAIN IN IQ AS RELATED TO INCOME LEVEL: NURSERY GROUP ONLY

Time of Gaining over 5 Points in IQ	Income Level of Family			
	Adequate	Borderline	Poverty	Total
First year only	5	3	7	15
Second year only	1	1	6	8
Both years	1	2	4	6
Neither year	1	1	2	3
No test	-------	--------	3	3
Total	8	7	22	37*

*Income not known in one case.

Comparison of the figures secured by the two ways of grouping the children in regard to economic standing showed that the three adequate-income children who made gains in other than the first year were classified in the middle category by the SES rating scheme used in the study. Contrariwise, the three children in the borderline-income category who gained only in the first year were in the highest SES group in the study. This and other differences that could be cited suggest that income alone is not as adequate as an SES rating for determining in which year children are likely to make their chief gains. If in addition to noting income level, however, investigators were to pay attention to such family traits as housekeeping, household management, and other signs of what might be called family adequacy, they could probably determine fairly accurately which children would be the first to benefit intellectually from nursery school.

Conclusions

Overall, then, this analysis of individual IQ changes confirmed the study's findings and made them somewhat more precise.

We found, first, that the amount by which the children's IQ's changed during the 2 years in nursery school depended to a marked extent on how low their IQ's were to begin with. The children whose original scores were under 70 gained an average of 23.6 points; those whose scores were 95 or above gained 4.6 points; and the changes made by the others ranged in an orderly manner between these two extremes.

In the comparison group, the same sort of relationship between original scores and gains in scores obtained, but the gains these children made were, on the average, much smaller. This was particularly true at the higher IQ levels, where only one child gained over 5 points.

These findings suggest that the diversity among the children in inherent intellectual capacity was not nearly as great as the original IQ scores implied. Attending nursery school helped the children who most needed help and did relatively little (so far as intellectual functioning is concerned) for those who were already operating at a normal level or better.

That the nursery-school children who originally scored within the normal range or better did not change greatly is in line with the conclusions of most of the nursery school studies conducted in the '20's and '30's. In those days most nursery school pupils probably came from middle-class homes, where "cultural deprivation" was not a problem. Today, preschool programs are looked to as one means of overcoming some of the hazards of poverty. What the present study suggests is that while not all children from poor families are equally deprived intellectually, those whose IQ's are low stand to benefit greatly from preschool programs.

This conclusion (much too sweeping to be confirmed by one small study) was complemented by the second main finding of the investigation: that the low-scoring children who came from the least-deprived homes were the ones whose IQ's came up to normal most quickly. This was not attributable in any important extent to their being a bit higher up the IQ scale at the start.

More important for program planning, however, was the finding that half of the children in the lowest SES group who had low IQ's at the start did not make a significant gain until the second year. The other half (those who did gain in the first year) continued to gain in the second year also. The performance of these latter children was in marked contrast to the children in the highest SES group, who made their gains in the first year and changed very little in the second.

This would seem to indicate that the extent of a child's intellectual deprivation is apt to vary with his family's socioeconomic standing, even within an SES distribution in which few families are above the poverty line. Apparently, the more disadvantaged a 3-year-old child's socioeconomic situation, the less likely is an IQ test to reveal his true intellectual capacity. This conclusion held for the children who attended the Howard University Nursery School, regardless of whether socioeconomic status was measured as in this study or whether income alone was used. We conclude, then, that program planners would be well advised to provide 2-year nursery schools for children who are living in poverty, especially for those whose IQ's are low.

APPENDIX B

BRIEF SKETCHES OF FOUR FAMILIES*

THE PURPOSE of this section is to picture more vividly the children and their families who were enrolled in the Howard Project. We have chosen four families (five children) more or less arbitrarily, keeping in mind that we wanted at least one family from each of the three SES levels and that we wanted to draw on the records of the observations made by the research staff on 12 of the 38 children in the nursery school. Thus the selection was not exactly representative of the nursery group as a whole.

The Terman Family

The Terman family was in the lowest of our SES categories. The student canvasser who first identified this family as containing a likely candidate for the nursery school described the mother as friendly and cooperative. The canvasser rated the neighborhood and the appearance of the dwelling as dilapidated and run-down, although the housekeeping in the apartment unit was described as neat and orderly.

This impression was reinforced by the adult worker in a home interview in July 1964, when Mrs. Terman was invited to enroll her son Geoffrey in the preschool. The apartment was described as dark and dingy, located in a basement adjacent to a furnace room, although an effort was apparently made to keep the apartment clean and neat. The mother was pleased to have her son attend the Howard Children's Center and agreed to keep the necessary pediatric and psychological appointments.

Duly enrolled in the preschool, Geoffrey had one of the best attendance records in the 1964–65 year; he was present 92 percent of the time. His attendance dropped to 79 percent the second year, primarily because of the 3-week absence described below.

At the time of the baseline interviews, conducted by the adult worker in fall 1964, the Terman family consisted of the mother, a father substitute, and four boys: one 7 years old, the 3-year-old Geoffrey, one a year and a half old, and an infant of 7 months. Another boy was born in February 1966. Mrs. Terman also had three older children who were in an institution pending their placement in foster homes.

Geoffrey's biological father was a 35-year-old native of Washington, D.C., who lived only a few blocks from the Termans' current address. He saw his children infrequently and did not seem to take much interest in them.

Mrs. Terman had been living for about a year in a common-law relationship with a 32-year-old man who grew up in the District and worked as a laborer for a wrecking company. The total yearly income of the family was assessed at $4,500, which may be a high estimate in light of the fact that in the course of the year the father substitute showed himself to be a somewhat irregular worker. From this estimated income, $82 was spent on rent for the shabby basement apartment, which consisted of a kitchen, one general sleeping and living room, and a shared bathroom.

---

* All names have been changed for this report.

At the outset of the project, Mrs. Terman was 28 and had lived in the District for the past 10 years. She grew up in a rural part of Virginia, one of six children. While reporting that she attended school through the 10th grade, it would probably be fair to estimate her scholastic attainments as not much above a fourth or fifth grade level.

The adult worker described Mrs. Terman as a "pleasant, soft-spoken woman who is attractive and responsive." Mrs. Terman seemed to value highly the preschool experience for Geoffrey, was always reliable in having him ready for the bus, and said that it was only family responsibilities and her need to give constant attention to the baby that prevented her from participating in the adult activities and visiting Howard University. The infant was frequently sick and required a number of visits to the hospital in the 1964–65 year. The 1965–66 year was also a difficult time for the family. With the birth of another baby, who almost immediately contracted pneumonia, Mrs. Terman had to rely on her oldest son, who was 9 when the new baby was born, to look after the younger children while she went to the hospital.

Staff contacts with the Termans consisted for the most part of inquiries and assistance concerning Geoffrey's health, including arrangement of clinic appointments. In May 1965 there was some evidence that the common-law relationship was becoming unstable. Mrs. Terman and the children moved away and were absent for about 2 weeks. The mother did not inform the school of her plans, contact was temporarily lost with the family, and Geoffrey was absent from school 10 out of 20 days in May, thus breaking his nearly perfect attendance record. During this time Mrs. Terman stayed in a Salvation Army facility and made an effort to secure support from the Department of Welfare. This effort was not followed through successfully, however, and early in June 1965 she returned to the apartment, and family life seemed to resume its former pattern.

This situation repeated itself in June 1966 when Mrs. Terman suddenly left her common-law husband, again taking the children with her. After many strenuous but futile efforts to locate her, the nursery school staff was put in touch with Mrs. Terman's sister, who informed them that Mrs. Terman had gotten a job and had hired someone to look after the children. The sister said that Mrs. Terman "felt bad" about withdrawing Geoffrey from nursery school but there seemed to be no other solution to her difficulties. The sister would not give the staff Mrs. Terman's new address but promised to relay any messages or mail. Three weeks later the staff learned that Mrs. Terman had returned to her old address. Contact was resumed with the family, and Geoffrey joyfully returned to nursery school.

Five gross but perhaps significant criteria may be used to summarize the status and participation of the Howard Project families: the socioeconomic status of the family, the child's initial Stanford-Binet IQ, the child's increase in IQ after 2 years of nursery school, the child's attendance record in the preschool, and the parents' attendance record in adult activities. This family was classified in the lowest SES quartile, high in child's and low in parents' attendance, original IQ was "middle," and increase in IQ unusually high.

Geoffrey himself was described as a robust-appearing child, with excellent body coordination, swift and decisive in his physical style. The 1964–65 observations reveal a low level of play and predominantly uninventive use of materials. He had a preference for the larger equipment, especially the steering-wheel toy, and he liked water play. There was little evidence of the child's attraction to the more intellectual (cognitive) type of play materials.

From the very beginning of school, Geoffrey seemed to need—and was given—a great deal of individual attention. He was a disruptive child, who could cause chaos in a group unless he received individual guidance from a teacher or aide. However, he was amenable to an "appeal to reason," as is indicated in the following excerpt from a research worker's early interview with his teacher in December, 1964:

> Geoffrey wants a lot of attention ... At nap time he cries and gets out of bed. He wants to be held and always wants to sit next to the teacher. He wants a lot of attention during non-nap time too. He is difficult in a group situation. If there is any new toy or material, he wants to monopolize it. However, one can reason with him. If the teacher explains that he can have his turn but the others must have theirs, etc., he will be okay afterwards. Yesterday I told the children a story about a farm. Each child was to have an animal and when the name of that animal was mentioned the child would hold it up. Geoffrey wanted all the animals and after they had all been stood up he knocked them all over. The other children were very upset because they were so eager for the song and game that was to go with the story. I took Geoffrey into the other room and "reasoned" with him, by telling him we couldn't continue with the story if he behaved that way. When I took him back into the room he behaved and we were able to continue with the song-game.

The research workers' observations, as well as the teacher's summary statement, show that Geoffrey's speech was immature, particularly during the first year. The few examples in the record of quoted or verbatim language attributed to the child indicate almost no use of expressive language, and a tendency to speak with primitive grammar. He often ignored direct queries, whether made by adults or other children, as if he preferred to get by with a minimal use of speech. Geoffrey's poor verbal ability was also noted by the testing psychologist, who summarized his impression after the fall 1964 test round by characterizing Geoffrey as an "affable, quiet child who scored below average in a slow-learner range (IQ—77) on all tests." The psychologist further remarked that the boy was "poor on both verbal and non-verbal tests" and that he was not systematic in approaching problems.

During the first year of school, Geoffrey continued to be negative and somewhat difficult in his classroom behavior, so that one teacher noted his "underdeveloped inner controls." At the same time he was thought to be receptive to a one-to-one relationship, responsive to praise, and generally alert. This was also evidenced in the narrative observations, in which numerous instances are described in which the boy climbed upon the lap of a teacher or aide and seemed to enjoy and derive reassurance from this close contact with an adult.

The teachers noted that the child had developed a special mechanism for controlling adults. He would occasionally fall, in a way to suggest a possible head injury, or he would over-respond, sometimes crying loudly, upon receiving even a slight bump on the head. In this way he could sometimes secure immediate attention and sympathy from adults, which apparently gave him satisfaction.

According to Mrs. Terman's report, the child had meningitis at 8 months of age, which was assumed to be a possible cause of his susceptibility to headaches and his tendency to head injury. Following a fall from a playground swing early in the school year, examination on the part of the school pediatrician—including a skull x-ray—revealed no abnormal findings, however.

In spite of his difficult behavior in nursery school, Geoffrey made the greatest test gains of the entire group of children. After 1 year of nursery school, his Stanford-Binet IQ jumped from 77 to 102. He made almost as great a gain in the second year, completing nursery school with an IQ of 122, which was 8 points higher than any other child in the group. His Peabody IQ (a measure of receptive verbal ability) remained fairly constant throughout the 2 years of preschool, however, and was only slightly above average for the group. His scores on both subtests of the Illinois Psycholinguistics test shot up in a manner very similar to his Stanford-Binet scores. His scores on these language tests were the highest of the nursery-school group and were well within the normal range of scores made by the predominantly middle-class children upon whom the test was standardized. Nevertheless, observations made of his behavior and direct quotations from his conversations do not suggest such a high level of verbal ability. Apparently Geoffrey was a child who learned a great deal during the 2 years but who, in everyday speech, reverted to the patois with which he was more familiar. As the Head Teacher mentioned in rating Geoffrey on verbal expressiveness: "Sometimes his speech is colloquial and ungrammatical, but it is meaningful."

In spite of his obvious intellectual gains, as measured by test results, Geoffrey remained a difficult child who was prone to periods of moodiness, was erratic in attention and persistence, and seemingly in need of much individual guidance from the teachers. He received a good deal of one-to-one attention from the Head Teacher and this undoubtedly was beneficial. He had several staunch friends among the children, and others who were "tolerated playmates." Narrative observations indicated that during the second year of nursery school he engaged in an increasing amount of purposeful, imaginative play, but it is doubtful whether any of the observers would have predicted the great gains in test scores that this youngster made in the course of the 2 years.

The Baron Family

This family was rated as belonging to the middle group in socioeconomic level. Both mother and child were rated high in attendance. The child's initial IQ was 92 in 1964 and 95 in 1966.

On a number of counts the Baron family gave the impression of being a limited but moderately stable inner-city lower class family.

Mrs. Baron was born in a small town in the western part of South Carolina, but the family moved to Washington, D.C., before her third birthday, and Mrs. Baron had been living in the District ever since. She was one of the few mothers in the nursery and comparison groups who was an only child. There seemed to be a close relationship between Mrs. Baron and her mother.

In the baseline interviews Mrs. Baron reported that she completed the ninth grade, having attended a large number of schools. It seemed clear to the interviewer that she was not very good in the basic academic subjects, and perhaps only functionally literate. She said that sewing and cooking were her favorite studies.

Mrs. Baron was described by the interviewer as a "rather mild and shy-appearing woman . . . with a pleasant and winning smile . . . She speaks quite openly and directly but doesn't articulate at all well and has a feeble vocabulary." The interviewer went on to say that "it is clear that she is not much of a talker and sometimes has trouble getting the words out."

In the course of the 2 years, the nursery school staff noticed quite a change in Mrs. Baron's personality. She became much more outgoing, talked a good deal in the informal adult activities meetings, and frequently telephoned the adult worker to chat about her family. In January 1966 (the second year of the preschool) the adult worker made this comment: "The change in Mrs. Baron, especially her outgoing characteristics in small groups, is simply amazing. One would never think she was the same quiet, withdrawn person who first visited the school."

Before her marriage to Mr. Baron when she was 21 years old, Mrs. Baron gave birth to a son and a daughter out of wedlock, the first being born when she was 17. These two older children, 7 and 5, were living with Mrs. Baron's mother at the outset of the Howard Project. Bertha was the first child of her union with Mr. Baron, quickly followed by a son (2 years old at the start of the project) and a daughter (3 months old), all of whom were in good health.

Mr. Baron was 27 years old at the start of the project, 3 years older than his wife. While growing up, he lived in a number of small rural communities in South Carolina but settled in the District when he was 21. His work history was varied, consisting of a number of jobs as an unskilled laborer and also some periods in which he did farm work. At the start of the project he was employed by a construction firm but did not work every day. He estimated his yearly earnings at less than $3,000.

Mr. Baron's employment remained intermittent during the 1965–66 school year, but by the summer of 1966 the family income was estimated at $4,000 per annum, due in part to the part-time employment of Mrs. Baron for most of the year.

Mr. Baron was described as giving the impression of possessing "a kind of robust intelligence." He spoke easily and freely and admitted that he had no skill in reading and writing (although he reported getting as far as the eighth grade). He gave the impression of being fond of his children, especially the 2-year-old boy, described by the interviewer as looking "like a little angel" with "enormous amounts of curly hair." Mr. Baron was one of the few fathers who visited the preschool in the first year. He spent an afternoon at the school, helping to paint the playground equipment, and visited again in the second year, bringing both the younger children with him.

The Baron apartment was located on the third floor of a busy commercial block in Washington's inner-city. The housekeeping and appearance of premises were variously assessed as fair to poor by different raters. Although the four-room apartment (including kitchen) was described as somewhat roomier than that of many other families in the nursery group, it was by no means spacious for a family of five. The monthly rent of $75 did not appear to be much of a bargain.

In discussing the neighborhood and ways of handling children, Mrs. Baron stated emphatically that she would not let her children play in the street. She expressed fear of accidents in the neighborhood, and with some feeling told of an incident in the summer of 1964 when a child on her block was killed by an automobile. She was quite insistent that even her 7-year-old son, in the care of his grandmother, was never permitted to go on the street unsupervised.

Mrs. Baron also showed motherly concern for her children by making sure that they had routine health checks at the clinic, visiting her older children's school, and borrowing books from the nursery school, which she said she read to Bertha and which Bertha thoroughly enjoyed. At the beginning of the second school year the adult worker commented: "Mrs. Baron gives me the impression that she wants to improve educationally and socially." At one point, Mrs. Baron said that she and her husband had taken out an insurance policy so that the children could attend college.

In the course of the 2 years it became clear that Bertha was often cared for by her grandmother. (The pattern in this family may be that as the children got older, the grandmother took a more prominent role in their care.) It was common for Bertha to spend weekends at the home of her grandmother and for a brief period during the second year of nursery school, Mrs. Baron and all the children lived with the grandmother, following a quarrel between the parents.

Mrs. Baron was among a small number of mothers who seemed to enjoy her contacts with the school for their own sake, deriving pleasure from the telephone chats with the adult worker, as well as from participation in parent activities. Mrs. Baron's life was filled almost exclusively with her duties as a mother and housewife, and she rarely found the opportunity to leave the home and take part in social or recreational activities other than those of the nursery school. Even during the second school year, when she had a part-time evening job while her husband stayed home with the children, she maintained a relatively high level of participation in the adult activities program.

Mrs. Baron's shy, diffident, and somewhat ineffective manner at the beginning of the project was reflected in the personality of her daughter. Teachers' comments and the narrative observations during the first year contain a number of references to the child's shyness, frequent passivity, and lack of initiative. Below is a summary statement written by Bertha's teacher describing her first day in the preschool:

> Bertha came in the Nursery School crying. It was difficult to get her interested in anything. She played in the doll corner for a while and with the play dough. Bertha had tears in her eyes while playing. She stopped crying on the playground and enjoyed the swing. Her coordination is good and she swings well and rides the tricycle well. When called in for lunch she started crying again. She did not eat nor would she lie on her bed. The teacher had to hold her on her lap for a while and then she sat in a chair all during nap time. Bertha enjoyed marching and clapping to music time. She wet herself. She liked a lot of adult attention.

In September 1964 the testing psychologist also stressed the child's shy and quiet manner in his summary statement. Bertha's speech was described as "difficult to understand" and "not fluent," and the child was characterized as "unable to sustain attention and effort on many tasks." Bertha had difficulty comprehending directions and tended to echo rather than follow instructions. Despite these shortcomings, and although her performance was uneven in a variety of tasks, Bertha scored in the average range of intelligence (Stanford-Binet IQ—92), which was enough to place her in the high third of the nursery group. Her initial Peabody IQ, which is a measure of receptive vocabulary, was 69, which was about average for the nursery group. She obtained one of the lowest scores on the Merrill-Palmer subtests and was untestable on either of the Illinois Psycholinguistic subtests.

At 3 years of age Bertha was described as "chubby" and "bright-eyed" and giving the appearance of being well-dressed and well-cared-for. She was one of the most persistent thumb suckers in the group. In almost any half-hour period during the day, an observer could find her with thumb or fingers in her mouth much of the time. Although Bertha's physically passive and quiet manner remained her chief characteristic throughout the 2 years of nursery school, she gave some evidence of coming out of her shell, of interacting more with other children, and of learning how to use adults for her own ends. Some of these gains carried with them an increase in negative behavior, which was true of a number of other children in the nursery group. The Head Teacher offered the following comments on aspects of Bertha's social growth during the first year of the project:

> Her method of managing adults was through passive resistance. Later she used inappropriate ways of ignoring limits, such as standing up in the swings. If a request was made for her to sit down, she smiled and continued standing. If she was removed from the swing and was told why she couldn't stand, it was necessary to prevent her from coming back to the swings since it did not seem possible to either reason with her or divert her. She also hit out at adults and children alike, sometimes sprawling on the ground to show her displeasure. In the case of hitting she was repeatedly told that if she wanted to say "Hello" she could just say it, that teachers and children didn't like to be hit. On one

> occasion she was given a chance to do something special: going to unlock the gate of the big playground. Although she hasn't brought herself to make overtures to adults verbally she walks up beside a teacher and holds her hand, or smiling, throws her full weight into the teacher's arms. She has been able to go on a walk on the campus with an adult and one other child. In looking for dandelions, she was alert in searching for them. She picked them with the long stems as requested, and placed them in the containers taken for the purpose.

The 21 half-hour narrative observations conducted by student observers between January and July 1965 reveal an almost unrelieved portrait of a passive child, only minimally involved in the preschool program. Speech was seldom heard. Passive gazing, watching, or listening were frequently noted by the observer. Involvement with materials was at a low level. In reading these observations it is difficult to detect any overt evidence of intellectual growth on the part of the child in the half year period covered.

During the second year, however, Bertha appears to have made gains, both socially and intellectually. Her Stanford-Binet IQ score increased by only 3 points in 2 years in nursery school, but her Peabody scores increased by nearly 20 points, suggesting a marked increase in her ability to understand the meaning of words. Expressive vocabulary, as measured by the Illinois Psycholinguistic subtests, was still very poor at the end of the preschool project. There was a favorable change in her test-taking behavior, however. On the last round of testing, the rater described her as "an active, alert girl; she showed a good deal of interest in the testing, though she was negative once in a while, usually in a teasing way. She worked quickly and with persistence."

The tester's comments on Bertha's behavior were corroborated by the research workers' observations during the second year, and the teachers' ratings and comments. Bertha's thumb-sucking continued, as did the teasing defiance of authority that had begun to emerge the first year, and she became somewhat boisterous in seeking attention. In commenting on her behavior toward the end of the second year, the Head Teacher said that, although Bertha made few overtures to other children, she was quite popular, and that her speech output with her peers had increased a good deal. She still had little verbal communication with her teachers, however.

In evaluating the effectiveness of Bertha's verbal communications, the Head Teacher stated "Bertha shows much improvement in the 2 years, but she had such a long way to come from her initial unwillingness to verbalize." In her interactions with the other children she still "wants what she wants when she wants it, and her initial efforts to fulfill her wishes are aggressive and hostile, but she can now more often accept the guidance of an adult in resorting to verbal means."

The Scudder Family

This family was rated in the lowest SES quartile, in attendance on the part of parents and children (twins), and in the two children's initial IQ ratings. Gain in IQ was rated high for one child and middle for the other.

Mrs. Scudder was born and spent the first 10 years of her life in a small town in Sumter County, South Carolina. Although she reported attending the District of Columbia schools until the 11th grade, her intellectual skills were in no way the equivalent of a student at the 11th grade level in a middle-class suburban school. Mrs. Scudder—a heavy-set woman with a usually cheerful manner—complained of numerous physical ailments, including heart trouble, high blood pressure, and asthma, and she was hospitalized briefly at the start of the project.

Mrs. Scudder bore her first child out of wedlock when she was 15 years old. This child, 18 years old at the start of the Project, was living in a foster home at that time. Mrs. Scudder also had one other daughter (now 13) and a son (now 12) before her marriage to Mr. Scudder. The daughter was in a training school, and the son in a local center for neglected or otherwise needy children.

In October 1964 the Scudder family consisted of the parents and six children, ranging in age from 9 to 3. The twins were the last born. With the exception of the 4-year-old, all of the children were attending public school, although not very regularly. Mrs. Scudder reported visiting the elementary school three times in the 1963–64 school year, and gave the impression of having a fair knowledge of school procedures and a moderately positive attitude toward the role of the school in the lives of her children.

Mr. Scudder was reported as being in poor health; he suffered from epilepsy and a heart condition. He was 50 years old; born in South Carolina, he had grown up and lived most of his life in the District. His work history was uncertain, although he had been employed (perhaps intermittently) by a fur-storage company. In the fall of 1964, Mr. Scudder was unemployed and the family was receiving a monthly income of $204 from the Department of Publice Welfare. The family of six children and two adults was attempting to live on this income, and Mrs. Scudder seldom failed to point out to the adult worker that it was not adequate for the family needs. (Subtracting the yearly rent of $624, which was probably not paid regularly, from the total income of $2,248, this would leave a total of less than $4.50 per day to feed, clothe, and otherwise nurture a family of six children and two adults.)

Mrs. Scudder reported that upon being unable to pay $91 in back rent, the family was evicted from a housing project in April 1964, and thereupon went to live with the Miller family, whose daughter Gwen was also enrolled in the Howard preschool. The Millers owned the house and rented part of the upper floor—actually two rooms—to the Scudders. Kitchen and bathroom facilities were thus shared between the two families. (Since Mr. Miller was a carpet layer, an odd feature of this generally ill-kept house, in which the odor of urine was sometimes overpowering, was that a few of the rooms had wall-to-wall carpeting, although so soiled and discolored as to give the impression of never being cleaned.)

The Scudders were one of the few families in the nursery group in which there was complete consistency in the three raters' independent judgments of "housekeeping" and "appearance of premises." The ratings were always given as "poor."

After a number of visits to the Scudder household, the adult worker recorded the following impressions:

> Although the house is very crowded and disorderly, with general confusion in the small, dirty two rooms, there is general warmth and acceptance by children of their home and parents. The mother and father are both soft-spoken to each other and to the children. The mother seems to be the dominant figure. She keeps letters from school in her pocketbook and secures them readily to discuss appointment dates and to show her welfare check if needed.

She also reported that Mr. Scudder took a hand in preparing the children for school, and that he would sometimes bring the twins downstairs to meet the school bus. Even so, Norma and Norman were among the poorest attenders during the 1964–65 year, both being absent about half of the time. Attendance improved somewhat the second year.

There can be no doubt that the Scudders lived a precarious hand-to-mouth existence, in which all orderliness and planfulness in maintaining a household had to be sacrificed to the primary struggle for food, shelter, and clothing. The bedding arrangement for some of the children consisted of a mangy mattress on the floor. The father and children were occasionally observed eating food directly from cans. Children were frequently kept out of school for lack of shoes.

During the second school year, Mr. Scudder was able to return to work intermittently, and the family no longer received welfare assistance. However, by the end of that year the Scudder family income was estimated as only $2,750, which represented some improvement over the previous year but hardly sufficient to pull them out of their impoverished condition.

Although neither parent had sufficient vitality to take an active part in the adult activities program, they each visited the school both years and seemed pleased to have the twins enrolled there.

The Scudder family, while by no means a thoroughly down-and-out or totally disorganized family, appeared to be one of the most deprived, least accessible, and unpromising households in the Howard project.

In the Head Teacher's summary of Norma Scudder's first year in the preschool, there appears the comment that few things succeeded in claiming Norma's attention, and that in fact "it was difficult to know if Norma *could* give attention . . ." She felt that no child in the group was more in need of making progress than Norma.

Norma was variously described as an "expressionless" child, solitary and silent in her play, listless, and with eyes that "lacked luster." Her speech was perhaps the most immature among the group of 38 children, and only on rare occasions was she motivated to talk.

Norma had trouble understanding and following instructions (a point also noted by the testing psychologist), did not take much interest in play materials, and spent much of the time lying on the floor or wandering about the room, thus seeming to participate only passively or to drift aimlessly from activity to activity. Often she would participate only when the teacher took her firmly by the hand. The Head Teacher reported, however, that there were two requests with which the child always complied: "request to go to the bathroom or to come to the table for lunch." Norma shared the other children's strong interest in using the wash basins, flushing the commodes, and otherwise passing the time in the toilet room.

On the behavior rating form completed after 3 months of nursery school, Norma was described by her teacher as follows:

> She smiles at children and plays in the doll corner, but does not talk to the other children . . . She tries to please most of the time, but she does not always understand requests . . . She does not ask for help. You have to sense her needs. Sometimes she will tap you on the side and smile at you and point to the object she needs help on.

Norma's initial Stanford-Binet IQ score was the second lowest in the group—66. (Her brother's was the lowest.) She made no gain in IQ score after 1 year of nursery school, but during the second year her Stanford-Binet IQ increased by 8 points to 74. Other test results were uniformly disappointing. Her Peabody IQ score progressively decreased from 61 to 49 and finally to 39 in the last round of testing. Throughout the three test rounds she was unable to answer any of the Illinois Psycholinguistic items correctly and her Merrill-Palmer scores were consistently the lowest in the nursery group.

Do teachers' comments and observations support this picture of a child who made minimal or no gains as a result of her preschool experience? Not entirely. There is little to indicate that Norma made much progress the first year of nursery school, but by the end of the second year she was at least beginning to talk, to pay greater attention, and to take part in the school activities. The Head Teacher's comments at the end of the 2 years summarize these gains:

> One of Norma's major gains has been in the strides made in interpersonal relationships. Initially her ability to be in contact with adults seemed to be almost nil... While Norma's restlessness may seem to exceed that of her peers, in some activities she is able to settle in, as at naptime and with some kinds of tablework and often at storytime . . . In the last 6 months, we have been aware of a sudden spurt of verbal expressiveness that is meaningful.

By any yardstick, Norma's gains from nursery school were slight. However, if her finally awakened need to verbalize continues, these small gains may be significant.

Norman Scudder shared a few of his sister's attributes, although he was a much more active and enterprising child. He was described as a thin but sturdy child with below-average coordination, who sometimes made himself very appealing, although he was often hard to handle. The half-hour narrative observations recorded by student aides during the spring of the first year reveal a highly distractible child, given to much random and undirected activity, and routinely exhibiting aggression against children. There were frequent incidents in which Norman ran about, knocking over other children's play materials. He was much addicted to hurling objects, often with deadly aim. The Head Teacher provided the following summary comment on his first year:

> Norman's behavior the first year of nursery school was characterized by aimless flailing out at somebody or nothing. Sometimes this might include throwing objects. Most times his real aggression was directed toward his twin, Norma, who was in another group, but who could be reached easily whenever he went to the bathroom or when he ran in a somewhat absent-minded way from his group. Norma seemed accustomed to these attacks and seemed to accept them as inevitable, since she made no attempt to avoid being hit. Norman was also well known by Gwen Miller, since the two families lived in the same house. By the end of the year Norman's behavior seemed less antisocial, and he was able with frequent reminders to accept certain limits.

Norman's restlessness, fleeting attention span, constant physical motion, flash aggressions, and perhaps primitive need to explore materials orally are conveyed in the following excerpt from an observation on the morning of January 27, 1965:

> . . . Norman goes over to the low shelves and fumbles with the toys. He comes over and puts his arm on Mrs. J who says, "Hello, Norman." He sits in chair behind another child and hits him on the head. The child cries and the teacher says, "Norman, he doesn't like being hit," after which she holds Norman's hand. He gets up and goes over to Mrs. T's group with finger in mouth. He leaves and goes to table where fish are and looks with finger in mouth. He then moves to the water fountain, looks around at teacher in other group. She says, "Norman, you may go to your teacher, dear." He moves to his group and says, "I want dat, teacher," and takes doll off table. He then comes up to me [observer] and says, "Look at dis," speaking of doll. (I shake my head.) He walks away and throws the doll on floor and walks to table near windows and begins to pick up pieces and put them back. He throws toy banana on the floor and then walks away. He returns, picks up artificial orange, and puts it in his mouth. He then puts it down and walks back to Mrs. J with toy dog in mouth, removed from table. He returns to table, and then walks to Mrs. T's group, who are looking at cards. He stands awhile, and then goes back to table near window, picks

> up artificial apple, puts it in mouth, and chews. He then picks up grapes and puts them in mouth. Next he picks up a doll, throws it on floor, stands, and looks out window . . .

The above observation is obviously very condensed, probably recording only the gross movements of the child and omitting many details in his apparently aimless and futile search for some focus of his attention, some purposeful and not merely random exploration of objects that quickly attract and then escape his eyes, hands, and mouth.

There is another, and perhaps important, side to Norman's personality which is occasionally revealed in teachers' notes and recorded observations. Along with his seemingly aggressive and hostile behavior toward people and things, he would often give a spontaneous demonstration of affectionate behavior. The following is taken from the notes of Norman's teacher after his first day in the preschool:

> When one of the children built the tower with the nesting cans, Norman made punching motions toward it and knocked it down. He ate well at lunch but used his hands and was quite messy. When led to do something he doesn't want to do, Norman's knees fold under and he refuses to walk. In the afternoon, Norman came up to me and said something which I did not understand; then he kissed me on the cheek. He did this several times.

On Norman's second day in school there is another example of his bestowing a kiss, this time on a complete stranger to the nursery: "In the morning, Norman went up to Dr. W and kissed her as he had kissed me the day before."

The student observers occasionally encountered Norman's more benign side, and were sufficiently impressed to submit special written reports (aside from the scheduled observations) to inform staff members and researchers of the child's actions. Below is such an informal report:

> I walked out on the playground and sat at a table in order to edit my notes. I had been there for about 3 minutes when Norman appeared. He walked over and snuggled himself under my arm. He hugged me, and I said, "Hi, Norman." He said "Hi" and looked up at me. I said, "I missed you the other week when you weren't here." He answered, "I missed you." I said, "Oh, you did? He replied, "Yeah." He looked up at me again and said, "I like you," and then he kissed me on the cheek. I replied, "I like you, too." He laughed and ran over and sat in one of the swings. He began to swing.

Norman's initial Stanford-Binet IQ of 59 was the lowest of all nursery- and comparison-group children. In the second round of testing (after 1 year of nursery school) he achieved an IQ score of 63, and after 2 years of nursery school his IQ was 81—an increase of 21 points in the 2-year period. Scores from other tests were less encouraging, however. His Peabody IQ increased from 58 to 68 the first year and then dropped to 54 on the last testing round. However, he made considerable improvement on the Merrill-Palmer subtests and was able to answer two of the Illinois Psycholinguistic items. Although his scores on all the tests were lower than those achieved by most of the children, they do suggest—with the exception of the Peabody—an overall improvement in manifest ability.

Some improvement in his restless, aggressive, and distractible behavior was also noted.

Also, while it is not evident from the narrative observations, the Head Teacher's comments indicate that Norman's command of language improved in the course of the 2 years, and that he had made some efforts to use expressive speech in appropriate ways:

> Measured against his own earlier verbal expressiveness, Norman made great strides . . . There has been an increasing amount of verbal expressiveness usually centering around some activity at home with parents or siblings.

At the end of preschool Norman was also reported to be more attentive to stories and games and to take pride in his accomplishments, but he continued to need a great deal of individual guidance.

The Ward Family

Perhaps no two families in the Project make for as much contrast in general attributes and life styles as the Scudders and the Wards. In many respects, they would be at opposite ends of any hypothetical continuum of SES along which we would range the families of the Project.

Strictly speaking, the Ward family falls outside of the target population that we had in mind when recruiting for the Project, and it was only the open policy followed in the house-to-house recruitment that allowed this family to be picked up in the nursery group. Briefly and imperfectly expressed, the Wards were not "lower class enough" to fit into the research framework of the project. Nevertheless, their inclusion affords the useful opportunity to present a small but suggestive study in contrasts, and should also make for fruitful observations in the development of family histories as the families are followed in coming years.

The five rough indicators of status show the Ward family high on all points except gain in IQ, which was nonexistent.

Mr. and Mrs. Ward were both in their late 20's at the start of the Project, having come to Washington, D.C., approximately 3½ years earlier. Both of them grew up in Jamaica, West Indies, in lower class families. They both spoke of their parents with warmth and respect and said that they had received a good upbringing.

The Wards early came under the influence of a religious society, and in large measure grew up under its protective wing. When they were still in their teens they decided to become professional workers in the society and to make their life careers within its fold. This decision governed their adult and married-life history. They were educated in part under the sponsorship of the society and later received special training as youth leaders and home mission workers spending a brief period in England. They were employed in Washington, D.C., as professional workers in the society's social center at the time of the start of the Howard Project.

The Wards were the only family in the Project in which both mother and father qualified as "sub-professionals" in our job-category index. Their annual income, however, was only $4,000 at the start of the Project. By the summer of 1966 their income had increased to $6,000 per year, presumably because they had been given added responsibilities by the religious society when it opened a new branch in another location. The religious society provided the Wards with living quarters rent-free (this fact being taken into consideration in estimating family income). They were the only family in the nursery or comparison group with a people-to-room ratio of less than one person per room. "Housekeeping" and "appearance of premises" were invariably rated as good or excellent.

In the baseline home interviews, both Mr. and Mrs. Ward expressed typical middle-class attitudes on such topics as marriage, family responsibilities, child management, and life ideals. Both were articulate and voiced their views with clarity and conviction. They had high hopes not only that their children would live as good Christians but also that they would become successful and fairly prosperous. For example, Mrs. Ward mused that "it would be nice if Arthur (the 2-year-old brother of Teresa) would become a doctor." Both parents were quite confident that if a child comes from a good home, in which high standards of conduct are maintained and inculcated, there is little likelihood of his getting into serious trouble. More than most parents in the project, the Wards expressed optimistic and well-reasoned views concerning the life prospects of their children, the chance of acquiring higher education, and the possibility of overcoming handicaps of race prejudice and a negative neighborhood environment.

All professional staff workers in the Project were agreed that the Wards made an excellent impression as parents and citizens, that they were alert and conscientious individuals, and that they evinced a uniformly cooperative attitude toward the preschool.

At the beginning of the Project, when Teresa was 3½, she was variously described as being bright, exhibiting a capacity for leadership in play, capable of getting on well with other children (although occasionally bossy and a tease), a picky eater, and somewhat more actively curious than many other children in the group. (For example, she was one of the few children to note pregnancy in a teacher, and once impulsively lifted up the teacher's blouse and giggled.)

Teresa had a good attention span during storytime. Unlike many other children in the group, she would from time to time openly express her likes and dislikes about the teachers. From the narrative observations we are given a picture of a child whose play patterns, orientation to materials, and attitudes towards adults and other children are generally more mature and purposeful than those of most other children in the project.

In her teacher's notes recorded soon after the first school day in the project, Teresa is depicted as an alert and tractable child with orderly habits and a dash of independence in her spirit. She was one of the few children who started off by politely asking permission to play with the toys. But she also let the teacher know that her mother had assured her that she did not have to sleep during rest time if she didn't want to. Also, she told the teacher that at home she was called "Terry" and not "Teresa." She specifically asked the teacher, "What is your name?" and inquired about the names of other children as well. She spontaneously noted and commented on the behavior of other children, seemed to seek out adult approval, and exhibited from the very first week a good attention span in playing with various equipment, such as play dough and a toy xylophone.

Thus, it seems that from the first days at school we were dealing with a well-brought-up and accessible child, quite ready and even eager to use to good advantage the preschool setting. This impression was reinforced by a brief summary comment made by the psychologist who tested Teresa in September 1964, at which time she received a Stanford-Binet IQ score of 113. The psychologist noted that the child was "very testable" and showed herself to be attentive and cooperative as well as "systematic in her approach," revealing persistence until able to solve a problem.

Narrative observations, as well as teachers' ratings and comments, did not suggest any great change in Teresa's behavior as a result of the 2 years of preschool, other than natural growth and maturation. By the summer of 1966 she was still a high-spirited, sometimes restless little girl, who remained the verbal "star" of the class. She used speech both as a means of expressing curiosity and as a means of expressing frustration, by asking help from the teachers. Perhaps the most noticeable change in her behavior during the second year was that she was more apt to ask a teacher to tell a child to stop bothering her rather than to hit back, as she was prone to do the first year. Overall, there was little in the observational records to suggest that Teresa gleaned any particular benefits from nursery school, although it is obvious she was doing well there, seemed to enjoy herself, and that her parents were pleased with her school experiences.

Test results support the conclusion that Teresa made no real gains in intellectual ability as the result of preschooling. The only exception was a large jump in her scores on the two Illinois Psycholinguistic subtests at the end of the first year. Her scores at that time were above average, as compared with the predominantly middle-class children upon whom the test was standardized, and were far above average when compared with the other Project children. This suggests that Teresa made considerable progress during the first year of preschool in the use of grammatical constructions and in making proper associations between words.

These language scores, however, did not improve any further as the result of a second year of preschool. Moreover, her Stanford-Binet IQ, which had remained constant at 113 during the first and second test rounds, dropped to 110 in the final test round. Her scores on the Merrill-Palmer subtests and the Peabody remained consistently high but improved only slightly in the 2-year period.

It is possible that Teresa's 3-month absence from the country, and her return to school just prior to the last round of testing temporarily depressed her test scores somewhat. The testing psychologist's comments do not support this idea, however, although it is obvious that Teresa showed traces of having been in a different culture: "Teresa must have either a Spanish mother or father. She has the most delightful accent, and sometimes asked what things meant in Spanish. Very flirtatious youngster. Teresa appeared to be quite content in the situation . . . she was at ease . . . attacked problems with ease." Perhaps Teresa "picked up" her Spanish accent from her relatives in Panama, since it had not been noted previously.

Perhaps a fairly bright and verbal child like Teresa would have made more vigorous intellectual growth had she been in a class where many of the children were her intellectual peers or superiors—as certainly would have been true if she had attended a middle-class suburban nursery school. It is quite possible that her home background was enriching enough so that any good nursery school would have been an adjunctive experience (as it is for most middle-class children) rather than a compensatory one. This is not to deny that a more heterogeneous group of children would have provided a more stimulating, competitive, experience for her.

Concluding Comments

The descriptive accounts of the five children presented above illustrate the wide range of individual differences and varying patterns of change existing within the nursery group of "low income" families. Geoffrey Terman, whose home life had been unstable since birth, made very extensive gains during both years of school, according to his test scores. However, because of his moody, erratic behavior, these gains may well prove precarious, particularly when he reaches public school, where he will probably not receive the individual attention he was fortunate enough to have had in nursery school.

The Scudder twins come from a family that is emotionally more stable than Geoffrey's but even more chronically depressed economically. One twin (Norma) showed hardly any improvement the first year of nursery school but during the second year she showed some progress. The other twin (Norman) likewise made more progress the second than the first year, and to a greater extent than Norma. He increased his initial pitifully low IQ to at least the dull-normal range and made some progress in speech.

Bertha Baron was another "late bloomer," in the sense that most of her gains, both social and intellectual, occurred during the second preschool year. Considering Mrs. Baron's high degree of interest in Bertha's schooling and her desire for self-improvement, Bertha's gains were somewhat disappointing. However, we suspect that her gains are less precarious than those made by Geoffrey and Norman.

Of all the children in nursery school, Teresa Ward appeared the least needy—intellectually, socially, and emotionally—and in fact did not make great strides forward in the 2 years. She is a youngster who would probably have progressed satisfactorily through public school with or without the benefit of nursery school, although a more challenging environment might have produced greater progress.

This variety in patterns of intellectual growth make the followup studies of these children of particular interest.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1969 O—313-802